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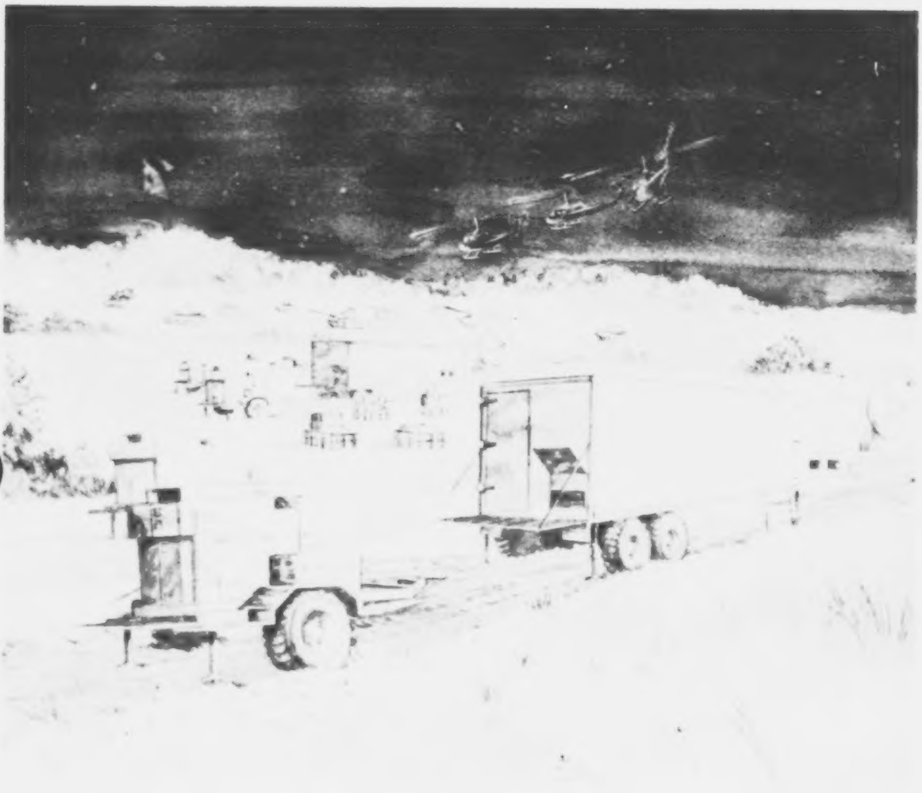
TM 11-7010-205-10-1

OPERATOR'S MANUAL



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AUTOMATED DATA PROCESSING SYSTEM AN/MYQ-4A (NSN 7010-01-158-5397)

HEADQUARTERS, DEPARTMENT OF THE ARMY

D 101.11:

13 MAY 1985

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WARNING

HIGH VOLTAGE

High voltage is used in the operation of this equipment.

ELECTROCUTION ON CONTACT

Electrocution may result if you fail to observe these safety precautions.

Be careful not to contact high-voltage connections or 115 and 208-volt ac input connectors when working on this equipment.

Do not connect or disconnect power plant cables while either generator is operating. Do not connect van adapter cables to switch box or disconnect with power on. Do not connect or disconnect ac power cables with power on. Never start generators without proper grounding. Never operate system without proper grounding.

For proper grounding techniques, refer to TC 11-6.
For artificial respiration, refer to FM 21-11.

SEVERE INJURY

Severe injury may result if you fail to observe these safety precautions.

Outside van. Do not adjust leveling jacks while landing gear is being raised or lowered. Do not stand beneath rear platform when you raise or lower it. Do not attempt to stow or remove boarding ladders without help. They can fall from their storage location when retaining bars are unpinned. Always wear ear protection gear when working around air conditioners or power plant. Never attempt to lift and move heavy equipment without help.

Power plant. Hold base of leveling jack securely when you pull release latch. Jack is spring-loaded and will snap back into its housing when latch is released.

Inside van. Never attempt to lift and move heavy equipment without help. Never touch front of portable heater when it is operating.

FLAMMABLE AGENTS

Isopropyl alcohol is flammable. Keep away from heat and open flames.

Always keep flammable material, such as paper, away from portable heaters when they are in operation.

Do not operate utility lights when cooling/ventilation units are not in service. Heat buildup may create a fire hazard.

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1 DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL

2 IF POSSIBLE, TURN OFF THE ELECTRICAL POWER

3 IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A WOODEN POLE OR A ROPE OR SOME OTHER INSULATING MATERIAL

4 SEND FOR HELP AS SOON AS POSSIBLE

5 AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

TECHNICAL MANUAL

TM 11-7010-205-10-1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 13 May 1985

OPERATOR'S MANUAL

AUTOMATED DATA PROCESSING SYSTEM AN/MYQ-4

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual, direct to: Commander, US Army Communications and Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703. A reply will be furnished to you.

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HOW TO USE THIS MANUAL

This manual tells you how to operate and service Automated Data Processing System AN/MYQ-4A.

LOCATION OF SUBJECTS IN MANUAL

In this manual, paragraphs are numbered in order by chapter. For example, paragraph 2-3 is the third paragraph in chapter 2. Pages are also numbered this way. Using this numbering system, there are two easy ways to locate the information you need in this manual.

- Table of contents
- Subject index

Use the Table of Contents to quickly find major parts of the manual. If the information you need is not listed in the Table of Contents, use the subject index at the back of this manual. It lists all subjects covered in the manual and directs you to the subject by page number.

OPERATING AND MAINTENANCE PROCEDURES

Operating and maintenance procedures in this manual have two features which help you perform them more easily:

- Initial setup boxes
- First-time performance aids

An initial setup box is used at the start of any procedure which requires setup items before you perform it. This box lists items such as tools and supplies needed to perform the procedure. If the box does not appear at the start of a procedure, it means no setup items are needed.

If you are using this manual to perform a procedure for the first time, always read through the entire procedure before you start. This will help you understand the task you will perform. Always perform the task steps in the order given. This will help assure correct performance. Use the illustrations beside the steps to find the parts of the equipment called out in the steps. Some steps include a reference to another paragraph. Go to that paragraph if you are not sure how the steps are done.

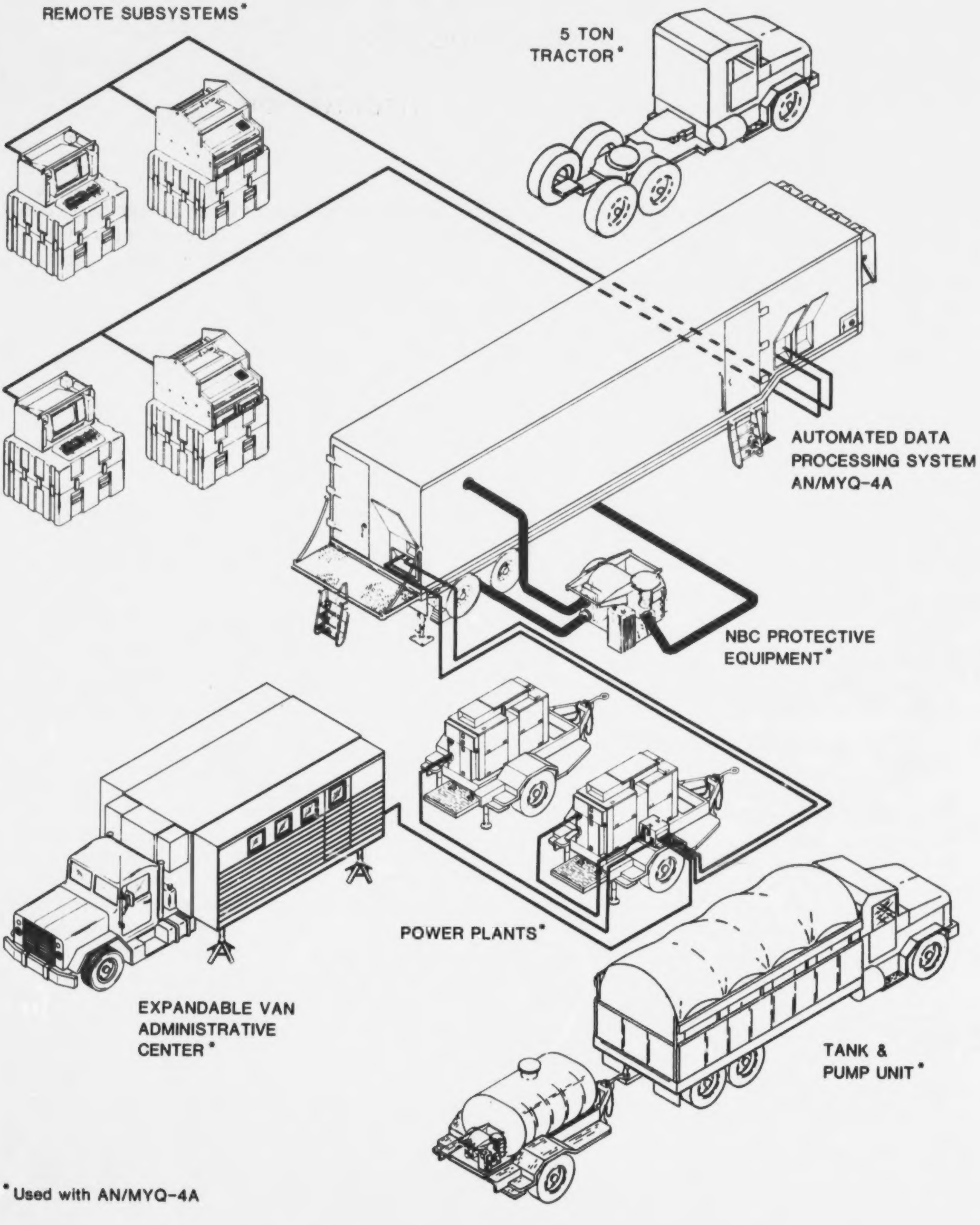

REMOTE SUBSYSTEMS*
5 TON TRACTOR*
AUTOMATED DATA PROCESSING SYSTEM AN/MYQ-4A
NBC PROTECTIVE EQUIPMENT*
POWER PLANTS*
EXPANDABLE VAN ADMINISTRATIVE CENTER*
TANK & PUMP UNIT*
*Used with AN/MYQ-4A

Figure 1-0. Automated Data Processing System AN/MYQ-4A

CHAPTER 1
INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE

This manual is the operator's manual for Automated Data Processing System AN/MYQ-4A (fig. 1-0). In the rest of this manual the acronym DAS3 (D/C) (Decentralized Automated Service Support System, Division/Corps support) is used as the common name for the AN/MYQ-4A.

DAS3 (D/C) is a mobile, van mounted, self-contained data processing system for support of Army divisions and corps. It features four complete subsystems:

- ADP subsystem
- Ac power subsystem
- Environmental subsystem
- Communications subsystem

Set-up, operation, preventive maintenance checks and services, and preparation for travel procedures for the system are included in this manual. Manuals for operation of individual devices within each subsystem are referenced in Appendix A.

1-2. MAINTENANCE FORMS AND RECORDS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (TAMMS).

1-3. HAND RECEIPT (-HR) MANUALS

This manual has a companion document with a TM number followed by -HR (which stands for Hand Receipt). TM 11-7010-205-10-HR consists of preprinted hand receipts (DA Form 2062) that list end item related equipment (i.e., COEI, BII, and AAL) which you must account for. As an aid to property accountability, additional -HR manuals may be requisitioned from the following source in accordance with procedures in Chapter 3, AR310-2: The US Army Adjutant General Publications Center ATTN: AGLD-OD, 2800 Eastern Boulevard, Baltimore, MD 21220.

1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your DAS3 (D/C) needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, US Army Communications and Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, NJ 07703. We'll send you a reply.

1-5. REFERENCE INFORMATION

Reference information includes the nomenclature cross reference list, list of abbreviations, and an explanation of terms (glossary) used in this manual.

1-6. NOMENCLATURE CROSS REFERENCE LIST

Common names are used throughout this manual, but you must use the official nomenclature when filling out report forms, sending an EIR, or finding referenced technical manuals.

Common Name	Nomenclature
SYSTEM	
DAS3 (D/C)	Automated Data Processing System AN/MYQ-4A
AUTOMATED DATA PROCESSING (ADP) SUBSYSTEM	
Central processor unit (CPU)	Data Processing Unit CP-1435A/MYQ-4
Tape drive	Magnetic Tape Unit TW-430/MYQ-4 (2 ea)
Console terminal	Keyboard Display MX-10173/MYQ-4
Console printer or Teleprinter	Teleprinter TT-804/MYQ-4A
Disk drive	Disk Memory Unit MU-705/MYQ-4 (6 ea)
Card reader/punch	Card Punch-Reader Interpreter RO-526A/MYQ-4
Line printer	Line Printer RP-309/MYQ-4A
I/O terminal	Keyboard Display MX-10173/MYQ-4 (2 ea)
Tape cleaner	Magnetic Tape Cleaner MX-10172/MYQ-4 (support equipment)
AC POWER SUBSYSTEM	
Frequency converter	Frequency Converter CV-3361A/MYQ-4
Power entrance panel	Power Entrance Panel
Bypass switch	Bypass Switch
Power control box	Power Control and Monitor Box
Power distribution box	Power Distribution and Filter Box
Tech power box	Technical Power Distribution Panel

Common Name	Nomenclature
AC POWER SUBSYSTEM (CONT)	
Utility power box	Utility Power Panel
Van power cable	Electric Power Cable Assembly (van power input cable) (6 ea)
Power adapter cable	Electric Power Cable Assembly Stub (switch box pigtail cable) (2 ea)
ENVIRONMENTAL SUBSYSTEM	
Air conditioner	Compact Vertical Air Conditioner F18T-2 (4 ea)
Temperature control panel	Temperature Control Panel C-10846/MYQ-4
Portable heater	Portable Electric Space Heater MIL-H-52641 (3 ea)
Humidifier	Humidifier
Humidistat	Humidistat
Emergency light	Emergency Light
Hygrometer	Temperature/Humidity Gauge
COMMUNICATION SUBSYSTEM	
I/O Cabinet A	
1900G Converter (2 ea)	Converter Unit CV-3848/MYQ-4
V.29 Modem (2 ea)	Modem Unit MD-1149/MYQ-4A
AUTODIN; IBM 360, and other DAS3 (D/C) interface patch modules (3 each)	
I/O Cabinet B	
Quasi Analog Modem Assembly (Contains up to 16 printed circuit boards to access remote terminals and autocall)	Modem Unit MD-1095A/MYQ-4
600GR Converter Assembly (Contains up to 12 printed circuit boards to access remote terminals)	Converter Unit CV-3788/MYQ-4A

Common Name	Nomenclature
COMMUNICATIONS SUBSYSTEM (CONT)	
Crypto Cabinet	
Telecommunications Line Controller (TLC)	Line Controller C-11256/MYQ-4)
KY68 Crypto Device	KY68/TSEC
Crypto Auxiliary Unit (CAU)	Crypto Auxiliary Set AN/UYK-22
Isolator Units (2 ea)	MX-10486/MYQ-4A
Bulk Storage Cabinet	
103J Modem (can be used in conjunction with crypto equipment)	Modem Unit MD-1150/MYQ-4A
Signal Entrance Panel, containing terminals and connectors (2)	
Lightning Protection and Filter Panels	
Communications Circuit Breakers	
SEMITRAILER VAN	
Van	Data Processing Semitrailer Van V-521/MYQ-4
Crew locker	Crew Locker
Van cable reel	Cable Reel (6 ea)
File cabinet	File Cabinet
Tape/disk storage cabinet	Tape and Disk Storage Cabinet
Bulk storage cabinet	Bulk Storage Cabinet
Spares cabinet	Tools and Spare Parts Cabinet
POWER PLANT (AUXILIARY EQUIPMENT)	
Power plant	Trailer Mounted Electric Power Plant AN/MJQ-12A
consists of:	consists of:
Power unit	Power Unit PU-406 B/M
consists of:	consists of:
Generator unit 1 Generator unit 2	Generator Set 60 kW, 50/60 Hz MEP-006A (2 ea)

Common Name	Nomenclature
POWER PLANT (AUXILIARY EQUIPMENT) (CONT)	
Trailer	Generator Trailer Chassis 2-1/2 Ton, 2-Wheel M-200A1 (2 ea)
Cable reel	Cable Reel RC-405/TR
Switchbox	Switchbox Assembly
Loadbank	Loadbank Assembly MEP 006 AWM
Interconnecting cable	Cable Assembly (14 feet) MILC 3432D
Interconnecting cable	Cable Assembly (22.5 feet) MILC 3432D

1-7. LIST OF ABBREVIATIONS

A complete list of abbreviations used in this manual is included in the glossary in the back of this manual (Glossary, section I).

1-8. GLOSSARY

A complete glossary of unusual terms is given in the back of this manual (Glossary, section II).

Section II. EQUIPMENT DESCRIPTION

1-9. GENERAL

DAS3 (D/C) features automated data processing (ADP) equipment mounted in a semi-trailer van. The system is made up of a central processor unit (CPU) and all necessary peripheral input/output devices to perform the tasks associated with data management.

The van also contains self-support equipment. Air conditioning, heating, humidifying, and frequency conversion equipment, combined with two trailer-mounted diesel-generators, allow the unit to operate in the field for extended periods under extreme weather conditions.

Because the DAS3 (D/C) is a mobile, self-contained data processing center it can be transported directly to the field units it will service. Once in the field, requests for data processing support can be brought to the DAS3 (D/C) or the field unit can access the ADP by hooking up field cables or wire pairs to the van's signal entrance panel. Once the cables/wires are in place, remote devices can be hooked into the DAS3 (D/C). If the DAS3 (D/C) is hooked into telephone lines or AUTODIN, the ADP will have world-wide data processing transmission capability that would only be limited by the telecommunications network.

As the operator, your responsibilities for this equipment include:

- Setting up/preparing the van for travel
- Activating the ADP
- Operating the system
- Transferring data to and from remote devices, other DAS3 (D/C) vans, IBM 360 computers
- Monitoring data transmissions
- Operating and monitoring autocall/autoanswer
- Reporting any faults during operation
- Performing general housekeeping services
- Using AUTODIN and crypto capabilities for the transfer of data.

You may detect faults in the system by observing software errors that lead to hardware problems. You will report the suspected fault to your senior operator and you may be called upon to discuss the events leading up to the fault with a repairer. An alert operator's observance might enable the repairer to isolate the fault faster and avoid lengthy down time.

1-10. EQUIPMENT PURPOSE, CAPABILITIES, AND FEATURES

The following paragraphs will acquaint you with the purpose, capabilities, and features of the DAS3 (D/C). The system is broken down into subsystems so that you may fully understand how each group of devices performs its function. Also, a location and description of each major component within the subsystem is provided so that you may become familiar with the physical layout of the van and understand how each piece of equipment relates to the entire operation.

1-11. DECENTRALIZED AUTOMATED SUPPORT SYSTEM, DIVISION/CORPS MODEL

a. Purpose. Provides mobile, dedicated automated data processing capability using Standard Multi-Command Management Information Systems (STAMMIS) developed at a central location, but operational at multiple user sites.

b. Capabilities and Features.

- Operates as a self-contained system
- Provides ADP support for dedicated STAMMIS processing at division, brigade, COSCOM, medical and port facilities
- Operates from local commercial power or its own power plant
- Can be accessed by way of remote terminals or interactive terminals
- Permits autonomous operation
- Is completely EMI/RFI protected
- Is capable of surviving limited nuclear, biological, and chemical battlefield threats

- Is transportable over land or by rail, by sea or by air
- Withstands movement over highways, secondary roads, or rough terrain
- Sets up for operation or may be prepared for travel within four hours when ambient conditions are at environmental extremes and within two hours when ambient conditions are at 65-85°F and 20-80% RH
- Is adaptable to emplacement on soft or unleveled surfaces
- Is capable of fording water up to 5 feet deep at speeds of 1 to 2 mph for up to 15 minutes

1-12. ADP SUBSYSTEM

a. Purpose. Provides mobile ADP support at the division, brigade, corps, and theater level. This support includes, but is not limited to, bulk data transmission, transferring data from punched cards to magnetic disk packs or magnetic tapes and the exchange of information, records, and data files between other ADP systems with the same protocol.

b. Capabilities and Features.

- Reduces, manipulates, and summarizes data
- Processes and communicates classified data up to and including SECRET levels
- Can use magnetic tapes, magnetic disk packs, diskettes, or 80-column punch cards as media for input/output transactions
- Generates reports and historical files for evaluation of inventory and trends
- Permits autonomous operation without special technological training

1-13. AC POWER SUBSYSTEM

a. Purpose. Distributes and controls all operating power for the system.

b. Capabilities and Features.

- Accepts 3-phase 120/208 volt input, either 50 or 60 Hz. Provides both technical power for ADP subsystem and utility power for other equipment
- Monitors voltage amplitude, phase, and frequency. Provides sound and light alarm when phase sequence and/or amplitude is not within prescribed limits
- Contains individual circuit breakers for each device
- Provides grounding of all devices plugged into technical or utility power outlets

1-14. ENVIRONMENTAL SUBSYSTEM

a. Purpose. Maintains van temperature and humidity and filters out dust and contaminants.

b. Capabilities and Features.

- Maintains van internal temperature within required operating limits when external temperature is between -50°F and 125°F
- Circulates conditioned air to all parts of van
- Maintains relative humidity at set limits over a wide range of outside conditions
- Provides portable space heaters to aid rapid warmup of system in extreme cold and to furnish an auxiliary source of heat
- Can be equipped with Nuclear Biological and Chemical Protection Equipment (NBCPE), to survive in a contaminated area.

1-15. COMMUNICATIONS SUBSYSTEM

a. Purpose. Allows ADP personnel to have two-way data communication through the CPU with peripheral devices, other DAS3 (D/C) systems and IBM computer systems. The data communications capability is achieved either by direct connected field lines or over telephone lines. In addition, DAS3 (D/C) personnel can communicate with other DAS3 (D/C) units or interface with Autodin by using telephones which can be direct connected to the binding posts on the A cabinet.

b. Capabilities and Features.

- Accepts 52 pairs of field wires, or 26 four-wire circuits
- Supports up to 18 individual communications channels
- Provides telephone, dc low-level, and quasi-analog inputs
- Contains 12 spare switches for future expansion
- Contains signal line filter for each line pair
- Interfaces with direct wired remote terminals at distances up to 6.21 mi (10 km) using quasi-analog modems or up to 1.24 mi (2 km) using a 600GR converter

1-16. SEMITRAILER VAN

a. Purpose. Houses all DAS3 (D/C) subsystems and provides sheltered workspace and storage facilities for crew.

b. Capabilities and Features.

- Is EMI/RFI shielded
- Is ruggedized and weather insulated
- Is watertight
- Fitted for quick installation of NBC protective equipment
- Is towable by prime mover M52 or M818. Can also be hauled over paved roads by prime mover M915

- Is towable at speeds up to 50 mph on highways, 20 mph on secondary roads, and 10 mph over rough terrain when fully loaded
- Has storage facilities for tools, spares, TMDE, crew equipment, and supplies

1-17. ADMINISTRATIVE VAN

a. Purpose. The M934 expansible van houses all administrative supplies and personnel as well as the decollator and tape eraser. It also provides storage for remote devices when they are not in use.

b. Capabilities and Features

- Can be driven to any site where DAS3 (D/C) vans are fielded
- Powered by a six cylinder 250 hp diesel engine with an automatic transmission
- Expansible body provides work/storage area
- Work area is heated by two 60,000 btu hot air heaters and cooled by a 36,000 btu air conditioner

1-18. POWER PLANT

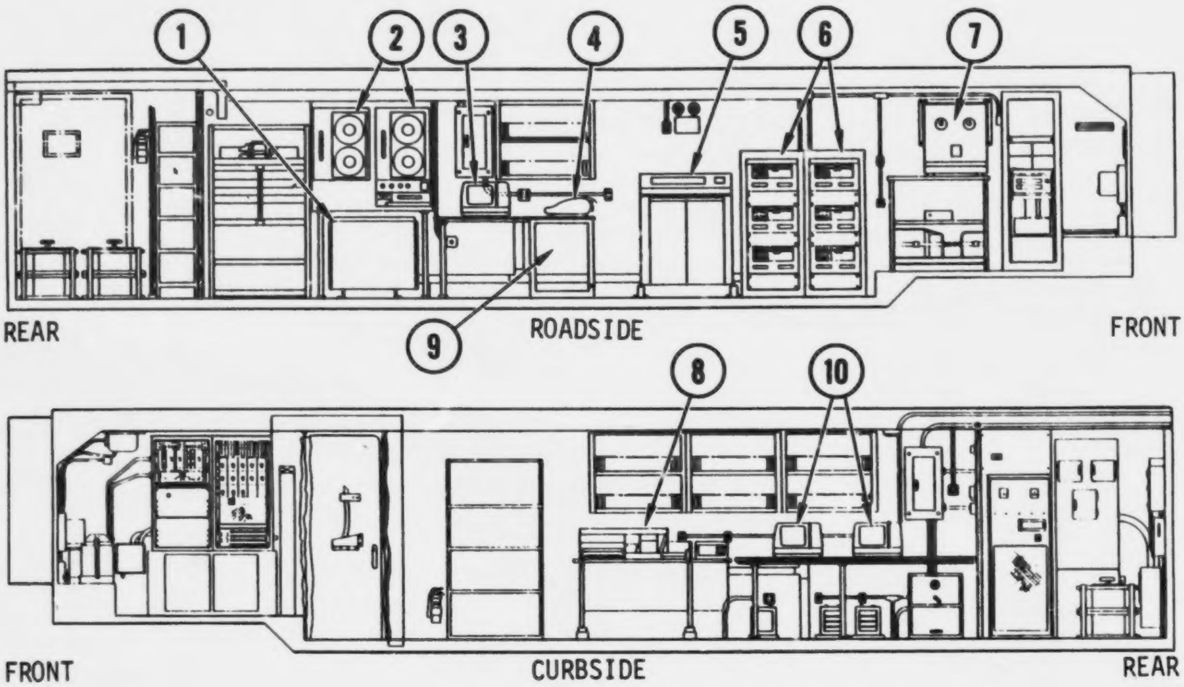
a. Purpose. Mobile power source for DAS3 (D/C). The AN/MJQ-12A consists of two diesel driven generators.

b. Capabilities and Features

- Produces up to 60 kW 50/60 Hz power
- Each generator is trailer mounted and fitted with a load bank
- A 600 gallon auxiliary fuel tank mounted on a cargo trailer provides fuel for round-the-clock operation

1-19. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

The major interior components of the DAS3 (D/C) are shown and described by subsystem (figures 1-1 thru 1-5). DAS3 (D/C) is housed in an XM971 data center van. See TM 9-2330-362-14&P, chapter 1, for the location and description of major exterior components. Source power for the system may be supplied by the power plant (TM 5-6115-545-12).



① CENTRAL PROCESSOR UNIT (CPU) - digital minicomputer. Contains memory and data processing functions of the system. The CPU interfaces with other devices of the ADP subsystem to receive data input and present data outputs. Control panel is mounted in tape drive cabinet.

② TAPE DRIVE (2 ea) - Magnetic tape auxiliary memory storage device used to input and store system data.

③ CONSOLE TERMINAL - Video display unit with keyboard. Enters and displays commands to CPU for execution of operation routines.

④ CONSOLE PRINTER - Prints hard copy of all characters displayed on console terminal.

⑤ LINE PRINTER - Prints copy of system output data.

⑥ DISK DRIVE (6 ea) - Magnetic disk auxiliary memory storage device. Furnishes operating instructions for the CPU and provides storage for data used in files.

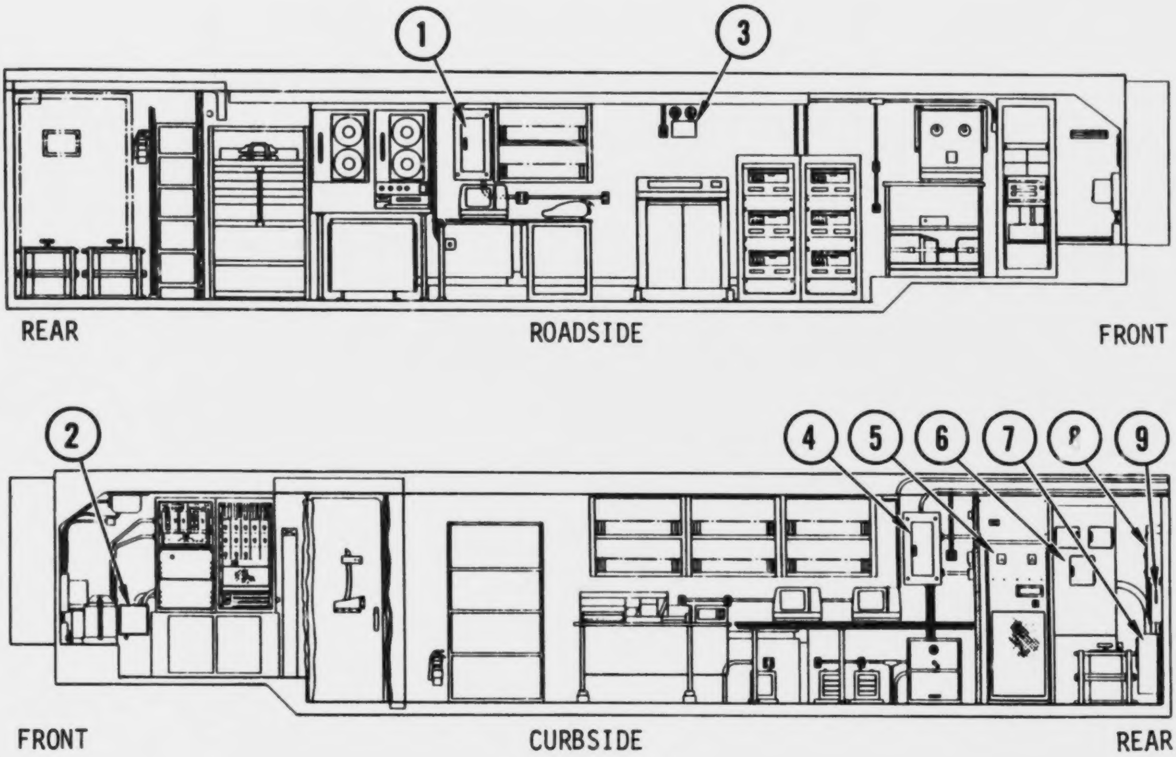
⑦ TAPE CLEANER - Magnetic tape cleaning device removes dirt and oxide lumps from magnetic tape.

⑧ CARD READER/PUNCH - On line, it uses punch cards for data manipulation and entry into the system; off line, it punches, reads, interprets, verifies, and reproduces punched cards under control of the operator.

⑨ DISKETTE SUBSYSTEM (Optional) - Uses floppy magnetic diskettes to load and store data. Can interface with other computer systems.

⑩ I/O TERMINAL (2 ea) - Video display unit with keyboard. Used for input/output operations like the card reader/punch, but all data is manipulated electronically instead of mechanically.

Figure 1-1. ADP Subsystem Components



① TECH POWER BOX - Mounted on roadside wall; has circuit breakers for protection of ADP devices.

② COMMUNICATIONS POWER BOX - Controls ac power to cabinets A and B and black power for crypto cabinet.

③ EMERGENCY LIGHT - Dual beam lights come on during a power interruption.

④ UTILITY POWER BOX - Mounted on curbside wall. Contains circuit breakers for protection of utility equipment.

⑤ FREQUENCY CONVERTER - Converts three-phase input power to 120-volt, single phase power for tech power use.

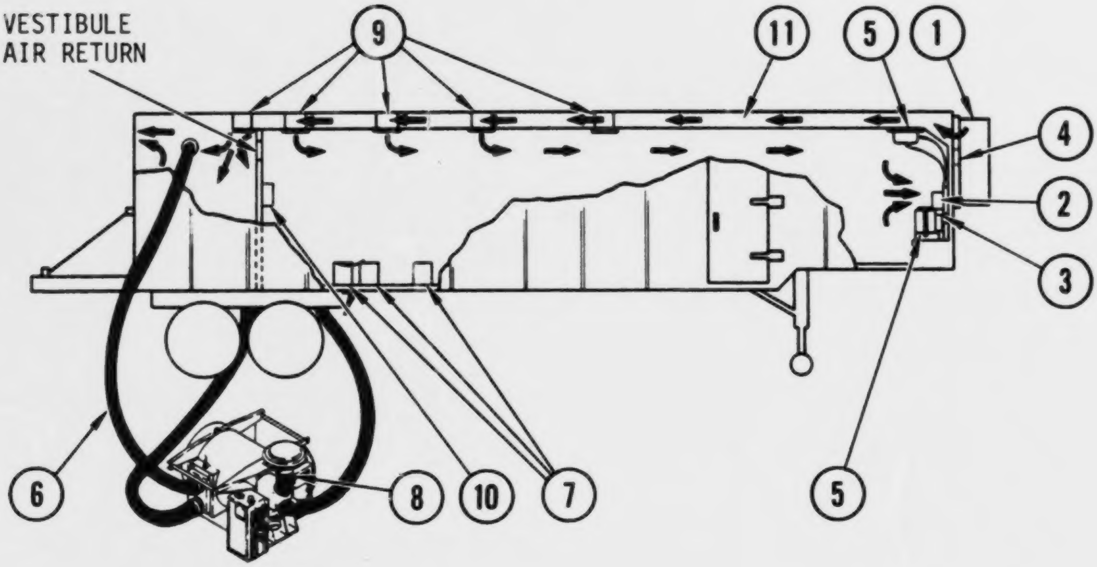
⑥ POWER DISTRIBUTION BOX - Two top circuit breakers control all van power. Bottom six ganged circuit breakers control power to air conditioners, tech power box, and utility power box.

⑦ POWER ENTRANCE PANEL - Brings ac power into van from an external source. Outside portion contains connectors for cable attachments and a ground stud for attaching van grounding lead. Inner portion contains power line protectors and indicator lights to show each power phase that is active.

⑧ POWER CONTROL BOX - Mounted above bypass switch. Monitors input voltage and frequency, is used to turn van power ON and OFF, and has an alarm system to warn of incorrect phase sequence or low input voltage.

⑨ BYPASS SWITCH - Mounted above power entrance panel. Switch position selects BYPASS ON, OFF, or FREQUENCY CONVERTER ON.

Figure 1-2. Ac Power Subsystem Components



NOTE

The Nuclear, Biological, Chemical Protective Equipment (NBCPE) control box is located on the tool and spares storage cabinet (figure 1-5).

① AIR CONDITIONERS (4 ea) - Mounted through the front wall. All controls are located in a temperature control panel.

② TEMPERATURE CONTROL PANEL - Contains operating controls for all four air conditioners.

③ HUMIDITY CONTROL PANEL - Wall mounted control panel for the humidifier. Includes a humidistat with a single dial for setting desire relative humidity.

④ RETURN AIR FILTERS/EMI GRILLS (4 ea) - Filter air-borne particles and keep out EMI radiation.

⑤ HUMIDIFIER - Consists of a pump, water tank, reservoir, a humidifier unit, and a five-gallon jerrican of distilled water.

⑥ NBC AIR ENTRANCE - Inlet for NBCPE filtered air.

⑦ PORTABLE HEATERS (3 ea) - Stored under operator table curbside.

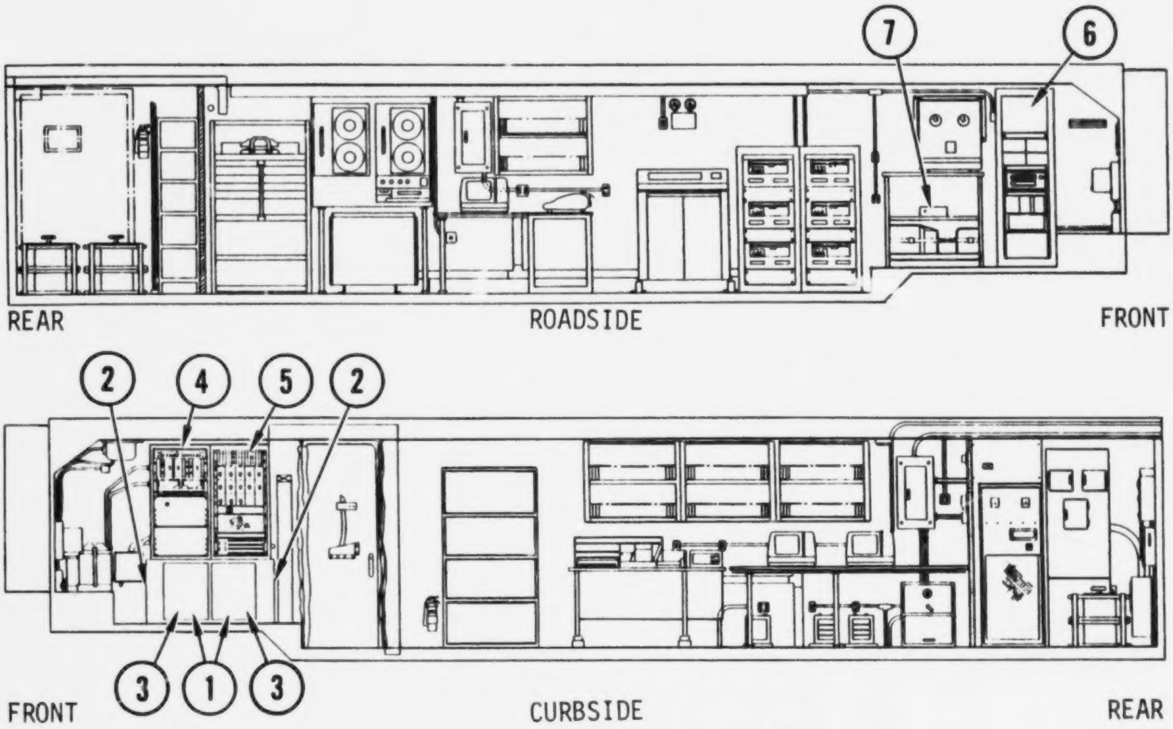
⑧ NBCPE unit located outside van.

⑨ AIR REGISTERS (10 ea) - There are five adjustable air outlet registers on the curbside and five on the roadside of the van.

⑩ HYGROMETER - Wall-mounted meter with readout for relative humidity and for temperature.

⑪ AIR DUCTS - Supply conditioned air to all parts of the van.

Figure 1-3. Environmental Subsystem Components



① SIGNAL ENTRANCE PANELS - Located on forward curbside wall. Contain a 56-pin connector and 104 spring-loaded terminals. Outside lines for remote units are connected either by connector, or by individual lines to spring-loaded terminals.

② SIGNAL SWITCHING PANELS - Located on the inside front curbside wall. Contain toggle switches to select either connector or terminal input lines. Also contain line protectors and filters.

③ LIGHTNING PROTECTION AND FILTERS - Protect the communications subsystem from line surges caused by lightning or other agents.

④ I/O CABINET A - Houses the AUTODIN patch module, two V.29 modems and two 1900G converters.

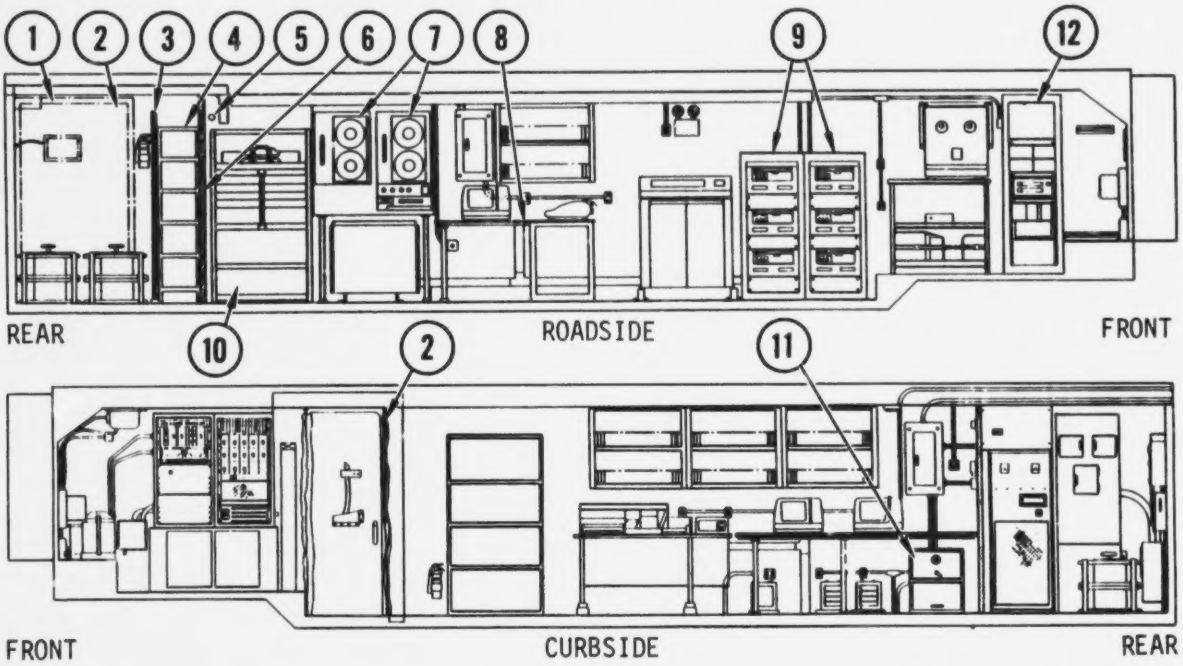
⑤ I/O CABINET B - Houses the patch panel, 600GR converter assembly, the voice data switch and the quasi-analog modem assembly.

⑥ CRYPTO EQUIPMENT - Cryptographic interface and control modules including the TLC and the CAU.

⑦ 103J MODEM - Modem used in conjunction with crypto equipment.

Figure 1-4. Communications Subsystem Components

The major exterior components of the DAS3 (D/C) are covered in detail in TM 9-2330-362-14&P, chapter 1. Interior components are shown and described in figure 1-5.



① AIR SHOWER - Perforated Ceiling Panel

② BLACKOUT CURTAIN - Track mounted curtain blocks light when door is opened.

③ GROUND ROD STORAGE RACK - Metal bracket with tie down clamp. Used to stow ground rods for transport.

④ CREW LOCKERS - Five-bin steel locker in vestibule. Used to store crew member personal effects.

⑤ NBCPE CONTROL BOX - Controls for NBC protective equipment.

⑥ VESTIBULE DOOR - Wooden service door. Contains service window and utility shelf. Locks from work area using deadbolt lock.

⑦ TAPE DRIVE ENCLOSURE - Steel cabinet for rack mounting of tape drive units. Also contains power distribution unit and CPU control panel.

⑧ WORKTABLE - Laminated work area mounted to roadside wall of van.

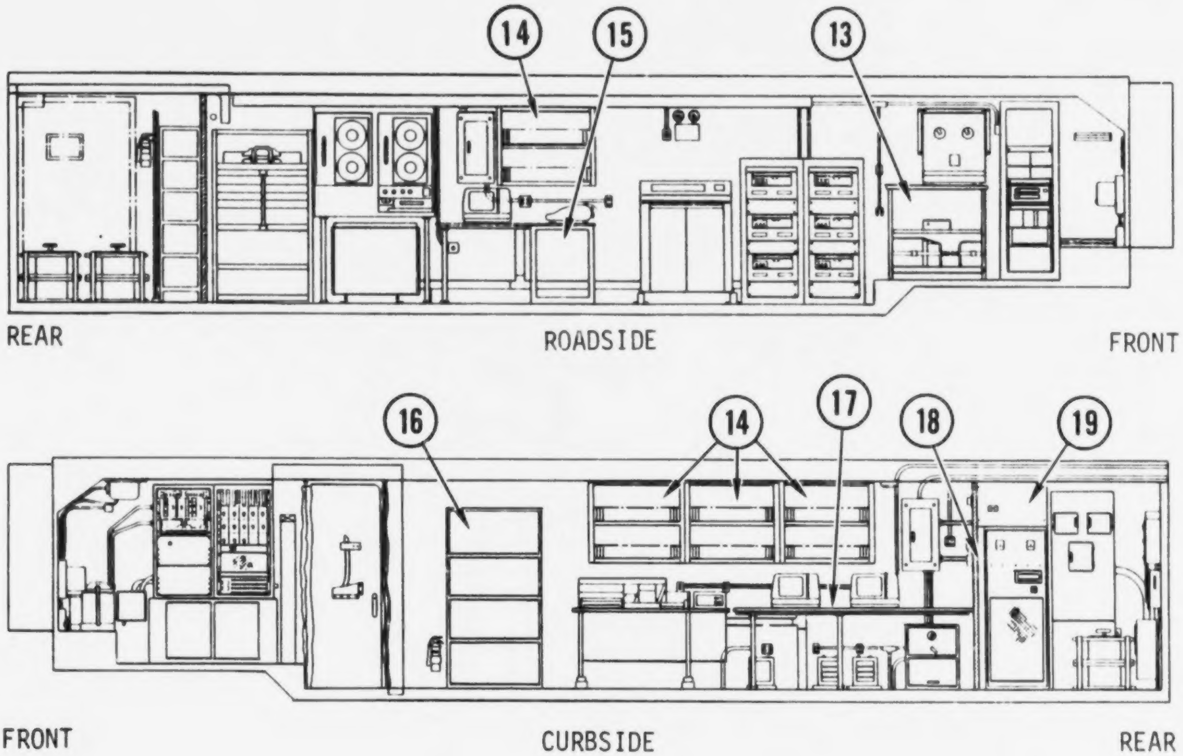
⑨ DISK DRIVE ENCLOSURE - Steel cabinet for drawer mounting of disk drives.

⑩ TOOL AND SPARES STORAGE CABINET - Steel cabinet with shelf and drawer storage. Stores special tools, TMDE, in-van spares for transport.

⑪ FILE CABINET - Lockable file safe for storage of file tapes, cards etc.

⑫ CRYPTO CABINET - Steel cabinet for rack mounting of crypto equipment.

Figure 1-5. Semitrailer Van Unit (1 of 2)



⑬ BULK STORAGE CABINET - Steel cabinet with shelves for TMDE

⑭ TAPE STORAGE RACKS - Wall mounted racks for storing reels of magnetic tape. The capacity of each rack is 50 reels.

⑮ DISKETTE DRIVE ENCLOSURE - Steel cabinet for drawer mounting of diskette drives (optional)

⑯ DISK STORAGE CABINET - Steel cabinet with shelves for disk pack storage. Slide out cabinet covers lock with key. Tie-down brackets are fitted on shelves for disk packs.

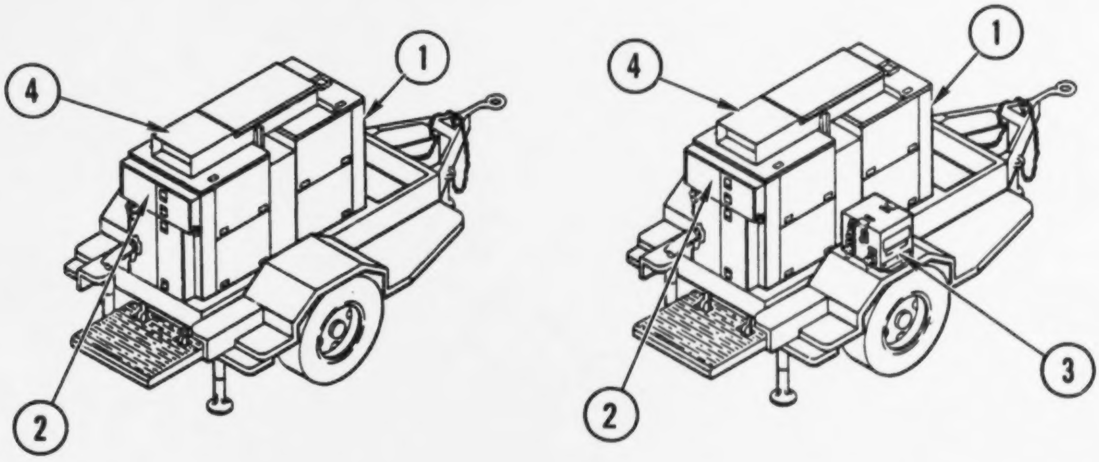
⑰ WORKTABLE - Laminated work area mounted to curbside wall of van.

⑱ AIR CONDITIONER SUBSTITUTION PLATE RACK - Storage rack for steel plates. Plates are placed over air conditioner opening when an air conditioner is removed for repair.

⑲ EXHAUST DUCT - Steel duct above frequency converter. Vents air from frequency converter into work area for cooling and filtering.

Figure 1-5. Semitrailer Van Unit (2 of 2)

Source power for the system may be supplied by the power plant (fig. 1-6).



① GENERATOR UNIT (2 ea) - 120/208 volt, three-phase, 60 kW diesel-powered unit.

② OPERATING CONTROLS - Located at rear of each generator. Engine controls are grouped at left of panel, generator controls at center, and fault indicators on right.

③ SWITCHBOX - Control interface between power plant and van. Also used when transferring load from one generator to the other without shutdown.

④ LOAD BANK - An air cooled resistive load which provides up to 50 percent of the generator set rated load to minimize carbon buildup in the engine while the generator is carrying a light load. The load bank will automatically remove the load should the generator become overloaded.

Figure 1-6. Power Plant Components

1-20. EQUIPMENT DATA

DAS3 (D/C) MODEL SYSTEM (VAN MOUNTED)

Dimensions:

Weight	28,850 lb	(13,113.6 kg)
Length	35.4 ft	(10.8 m)
Width	96.0 in.	(244.0 cm)
Height	141.0 in.	(358.0 cm)

Operating Environment (outside van):
Temperature -50°F to 125°F (-46°C to 52°C)
Relative Humidity 0 to 100%
Altitude to 6,000 ft (1,828 meters)

Operating Environment (inside van):
Temperature 60°F to 85°F (16°C to 29°C)
Relative Humidity 20% to 80% (noncondensing)
Altitude to 6,000 ft (1,828 meters)

DAS3 (D/C) MODEL SYSTEM (VAN MOUNTED) (CONT)

Power Requirements:
Voltage 120/208 volts 3-phase
Frequency 47 to 63 Hz
Power (max) 60 kW

Emplacement Time:
2 hours max under normal conditions (65-85°F and 20-80% RH)
4 hours max under extreme conditions

Fording Capability:
Up to 5 feet of water at 1 to 2 mph for 15 minutes

ADP SUBSYSTEM

Weight and Dimensions:

Central Processor Unit

Weight	374.0 lb	(170.0 kg)
Height	27.5 in.	(69.9 cm)
Width	24.0 in.	(61.0 cm)
Depth	33.0 in.	(83.8 cm)

Tape Drive

Weight	120.0 lb	(54.0 kg)
Height	24.0 in.	(61.0 cm)
Width	19.0 in.	(48.0 cm)
Depth	18.0 in.	(46.0 cm)

Console Terminal

Weight	62.0 lb	(28.0 kg)
Height	13.1 in.	(33.0 cm)
Width	18.1 in.	(46.0 cm)
Depth	25.5 in.	(65.0 cm)

Line Printer

Weight	351.0 lb	(159.5 kg)
Height	44.3 in.	(113.0 cm)
Width	34.4 in.	(87.0 cm)
Depth	29.7 in.	(76.0 cm)

Disk Drive

Weight	34.0 lb	(15.0 kg)
Height	36.2 in.	(92.0 cm)
Width	23.0 in.	(58.0 cm)
Depth	36.0 in.	(91.0 cm)

Tape Cleaner

Weight	85.0 lb	(38.0 kg)
Height	27.3 in.	(69.0 cm)
Width	24.0 in.	(61.0 cm)
Depth	16.2 in.	(41.0 cm)

ADP SUBSYSTEM (CONT)

Card Reader/Punch

Weight	320.0 lb	(145.0 kg)
Height	38.0 in.	(97.0 cm)
Width	60.25 in.	(153.0 cm)
Depth	27.0 in.	(69.0 cm)

I/O Terminal

Weight	62.0 lb	(28.0 kg)
Height	13.1 in.	(33.0 cm)
Width	18.1 in.	(46.0 cm)
Depth	25.5 in.	(65.0 cm)

Dual Diskette Drive

Weight	61.7 lb	(28.0 kg)
Height	7.3 in	(19.0 cm)
Width	17.5 in.	(44.0 cm)
Depth	22.0 in.	(56.0 cm)

Operating Environment:
  Temperature 50°F to 100°F (10°C to 38°C)
  Relative Humidity 20% to 80% (noncondensing)

AC POWER SUBSYSTEM

Nominal Power Requirements:

At power entrance panel	120/208 V ac 3-phase 50 or 60 Hz
At utility power outlets	120 V ac, 50 or 60 Hz
At tech power outlets	120 ± 2 V ac 60 ± 3 Hz
At air conditioning units	208 V ac, 3-phase, 50 or 60 Hz

Frequency converter:
  Electrical input:
    Voltage: Nominal, 208 V ac, three phase, three wire
    Frequency: 47 Hz to 63 Hz
    Voltage Limits ±10% steady state
      ±30% transient for 5.0 seconds

  Electrical Output:
    Voltage: 115 Volts ac = ±10% single phase
    Frequency: 60 Hz ± 0.5%
    Full load output: 87 amps @ 115 volts
    Efficiency: 80% min at full load
    Overload Capacity: 150% of full rated load for 3 cycles. Current limiting at 120% full load after 3 cycles

  Storage temperature -50°F to 160°F (-46°C to 71°C)
  Operating temperature 30°F to 100°F (-1.11°C to 38°C)

ENVIRONMENTAL SUBSYSTEM

Weight and Dimensions:
  Air Conditioner

Weight	260.0 lb	(117.9 kg)
Height	45.5 in.	(115.5 cm)
Width	17.1 in.	(43.3 cm)
Depth	19.6 in.	(49.7 cm)

ENVIRONMENTAL SUBSYSTEM (CONT)

Humidifier

Weight	20.0 lb	(9 kg)
Height	11.5 in.	(29.2 cm)
Width	10.5 in.	(26.6 cm)
Depth	12.0 in.	(30.4 cm)

Portable Heater

Weight	19.0 lb	(8.6 kg)
Height	12.0 in.	(30.4 cm)
Width	12.5 in.	(31.7 cm)
Depth	12.0 in.	(30.4 cm)

Power Requirements:

Air Conditioner

Voltage	208 V ac
Frequency	50 Hz or 60 Hz
Phase	three

Humidifier

Voltage	115 V ac
Frequency	50 or 60 Hz

Portable Heater

Voltage	115 V ac
Frequency	50 or 60 Hz

Operating Environment (external):

Temperature	-50°F to 125°F (-46°C to 52°C)
Relative Humidity	0% to 100%

COMMUNICATIONS SUBSYSTEM

Weight and Dimensions:

Communications Cabinets A and B (fully loaded)

Weight	1050 lb	(472.5 kg)
Height	66.7 in.	(169.4 cm)
Width	48.5 in.	(123.2 cm)
Depth	30.5 in.	(77.5 cm)

Crypto Cabinet (without crypto equipment)

Weight	260.0 lb	(117.9 kg)
Height	67.2 in.	(170.8 cm)
Width	3.0 in.	(58.4 cm)
Depth	30.5 in.	(77.5 cm)

Operating Environment (internal):

Temperature	50°F to 100°F (10°C to 38°C)
Relative Humidity	10% to 90% (noncondensing)

Power Requirements:

Voltage	100 V ac to 120 V ac
Frequency	60 Hz

SEMITRAILER VAN

Weight and Dimensions:

Weight (empty)	12,860 lb	(5,787.0 kg)
Height (operational)	141 in.	(358.1 cm)
Width	96 in.	(243.8 cm)
Length	425 in.	(1,079.5 cm)
Capacity	20,000 lb	(9,000.0 kg)

Operating Environment (external):
Temperature -50°F to 125°F (-46°C to 52°C)
Relative Humidity 0% to 100%
Altitude to 6,000 ft (1,828 meters)

Power Requirements (dc voltage):
Voltage 24 V dc

Tire Inflation:

Highway	50 psi (344.75 k pa)
Cross country	30 psi (206.85 k pa)
Sand, mud, snow	20 psi (137.9 k pa)

Speeds:

Highway	50 mph
Improved gravel	20 mph
Cross country	10 mph

POWER PLANT (AUXILIARY EQUIPMENT)

Operating Environment:
Temperature -65°F to 175°F (-53.9°C to 79.4°C)
Altitude to 8000 ft with degradation of 3% per 1,000 ft after 5,000 ft

Load Capacity:
60 kW

Duty Classification:
Continuous

Fuel Tank Capacity:
Full 55.0 gallons

1-21. SYSTEM CONFIGURATION

To aid in your orientation to the system, study the way each device interconnects with the CPU and note the directional arrows indicating data and signal flow in the functional block diagram (fig. 1-7). This study will help you understand the role of each device in the ADP subsystem and how each device interfaces with the CPU.

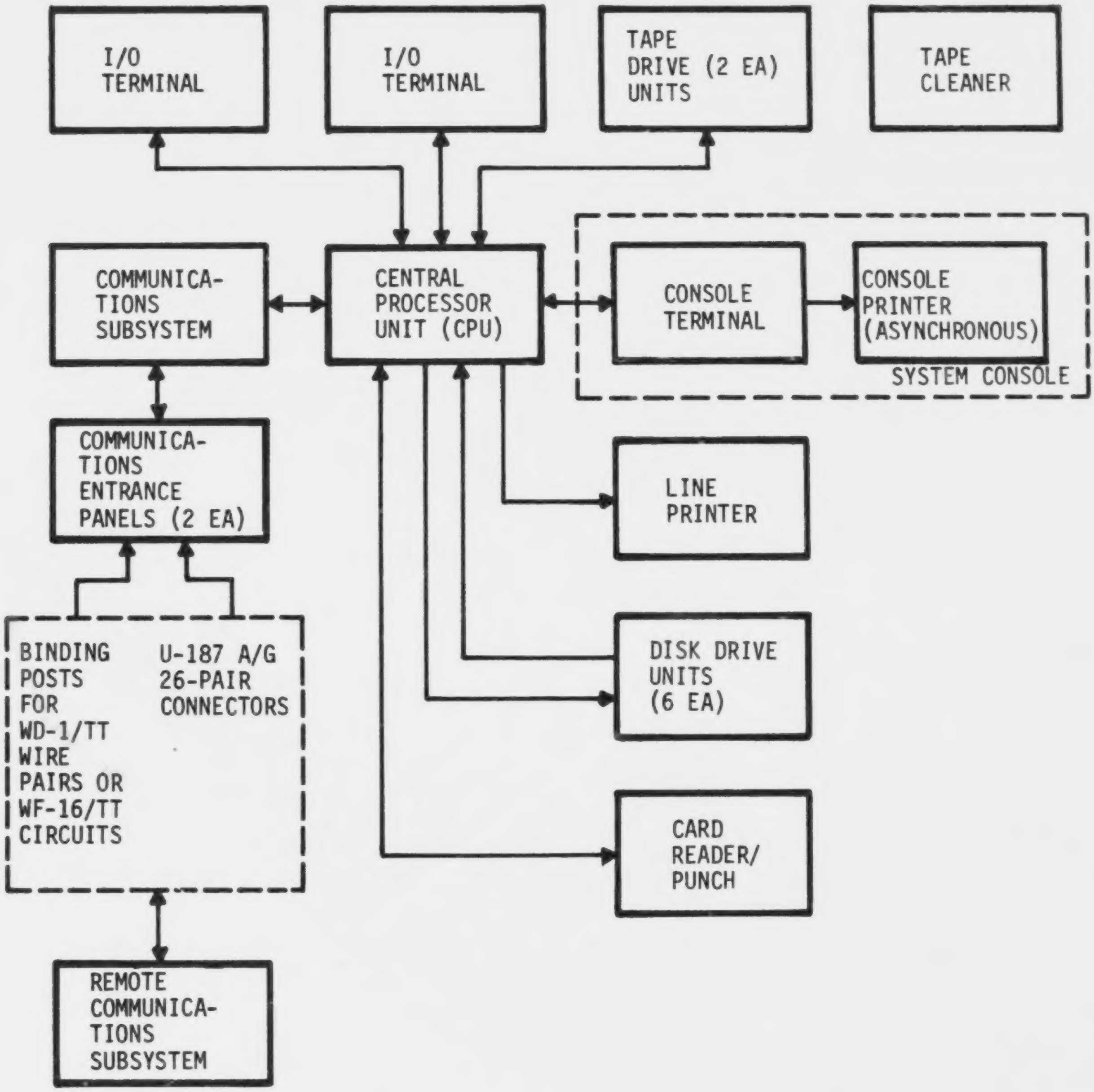
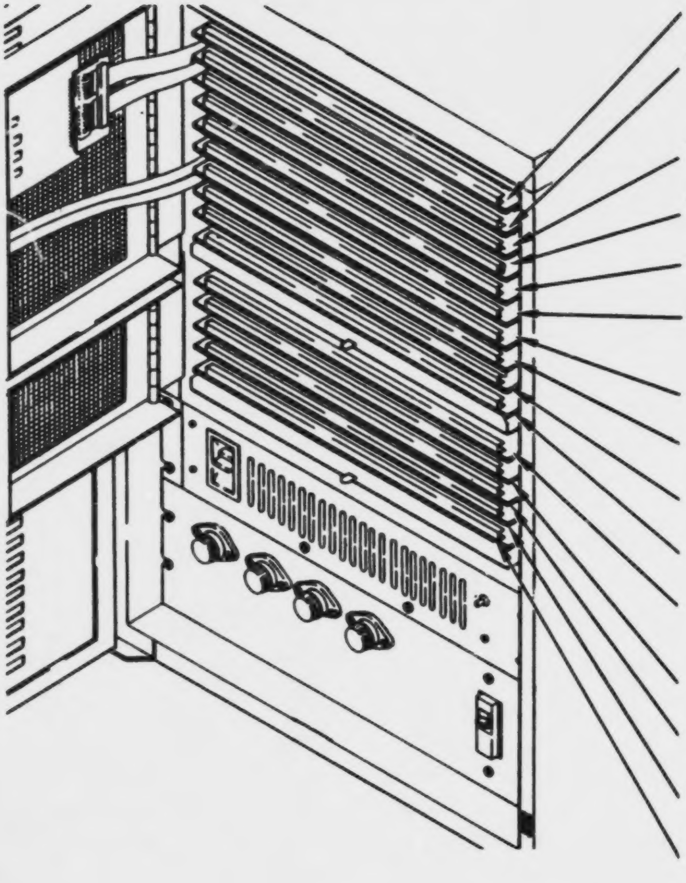

I/O TERMINAL
I/O TERMINAL
TAPE DRIVE (2 EA) UNITS
TAPE CLEANER
COMMUNICATIONS SUBSYSTEM
CENTRAL PROCESSOR UNIT (CPU)
CONSOLE TERMINAL
CONSOLE PRINTER (ASYNCHRONOUS)
SYSTEM CONSOLE
COMMUNICATIONS ENTRANCE PANELS (2 EA)
LINE PRINTER
BINDING POSTS FOR WD-1/TT WIRE PAIRS OR WF-16/TT CIRCUITS
U-187 A/G 26-PAIR CONNECTORS
DISK DRIVE UNITS (6 EA)
CARD READER/ PUNCH
REMOTE COMMUNICATIONS SUBSYSTEM

Figure 1-7. ADP Subsystem Functional Block Diagram

1-20. ADP SUBSYSTEM

The heart of the ADP subsystem is the central processor unit (CPU). The unit consists of a megabus containing circuit boards plugged into slots in the backplane (fig. 1-8). The boards and megabus represent the memory and the controllers required to manage the operation of the peripheral equipment and to interface with the software.



SLOT	CIRCUIT BOARD
15	CENTRAL PROCESSOR AND TERMINATOR
14	COMMERCIAL INSTRUCTION PROCESSOR
13	DISK DRIVE CONTROLLER #2
12	DISK DRIVE CONTROLLER #1
11	MDC - REAL TIME CLOCK
10	MDC - SYSTEM CONSOLE AND PRINTER, LINE PRINTER
9	MAG TAPE CONTROL UNIT
8	DATA RECOVERY UNIT
7	MLCP-REMOTE DEVICES
6	MEGABUS CONNECTOR CABLES
5	MLCP-CARD READER PUNCH/I/O TERM/REMOTE DEVICES
4	MLCP-REMOTE DEVICES
3	MLCP-I/O TERM/REMOTE DEVICES
2	HI DENSITY MEMORY
1	TERMINATOR BOARD

Figure 1-8. CPU Megabus Slot/Board Configuration

The CPU control panel is your operator interface with the central processor (CP) board for startup, self-testing, and bootloading of system programs. This panel (fig. 1-9) is mounted on the front of the tape drive cabinet. A cable connects it to the central processor through a repeater board. The repeater board amplifies the signal for better reception by the CP board. The commercial instruction processor works in conjunction with the central processor to perform commercial instructions.

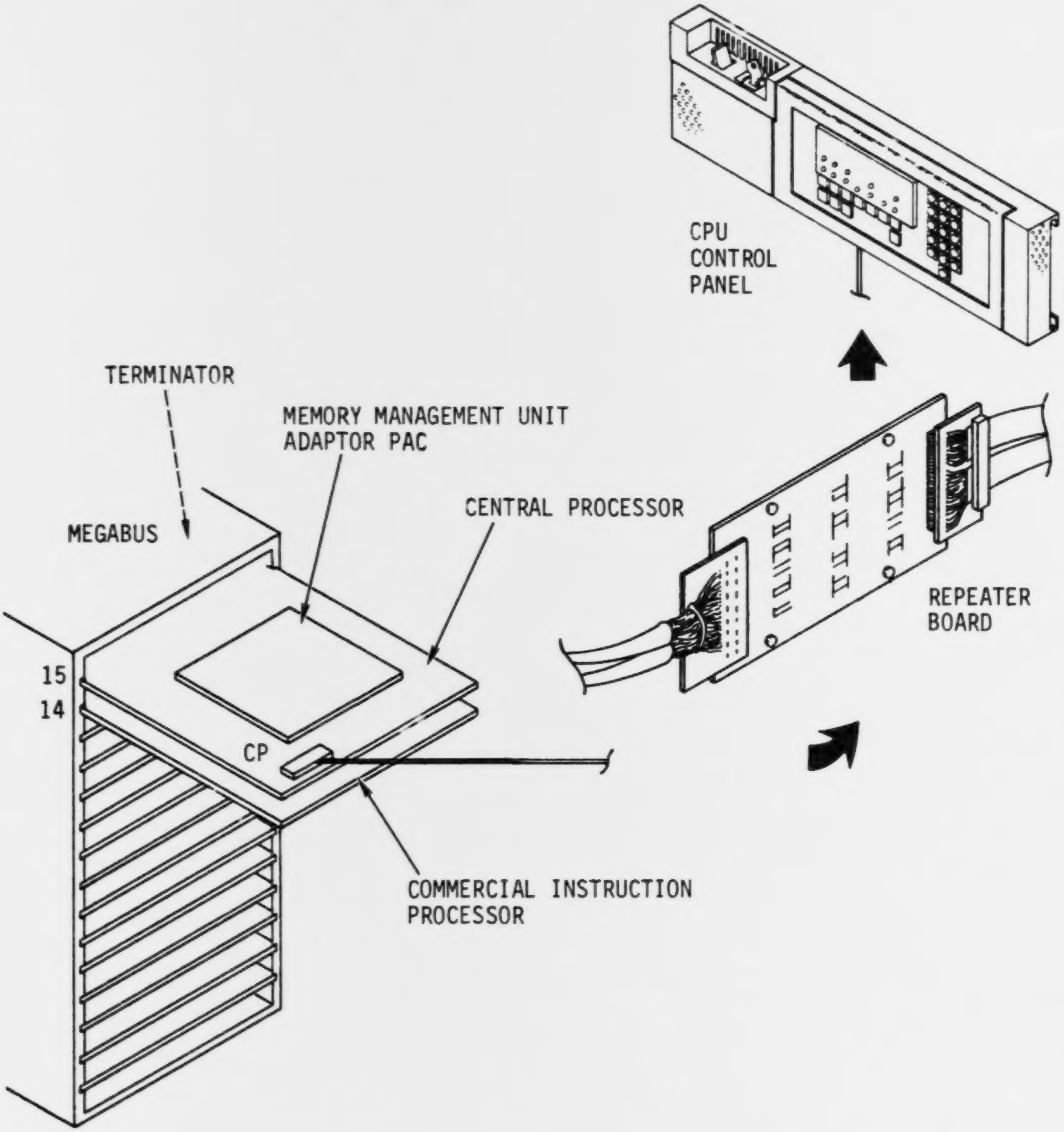

CPU
CONTROL
PANEL
TERMINATOR
MEMORY MANAGEMENT UNIT
ADAPTOR PAC
CENTRAL PROCESSOR
MEGABUS
15
14
CP
REPEATER
BOARD
COMMERCIAL INSTRUCTION
PROCESSOR

Figure 1-9. Central Processor and Control Panel Configuration

The disk drive units are connected by cable to the disk controllers (fig. 1-10). The system disk pack is loaded onto disk drive 0400. If disk drive 0400 is not operational, the system disk pack should be loaded onto the next sequential disk drive that is operational.

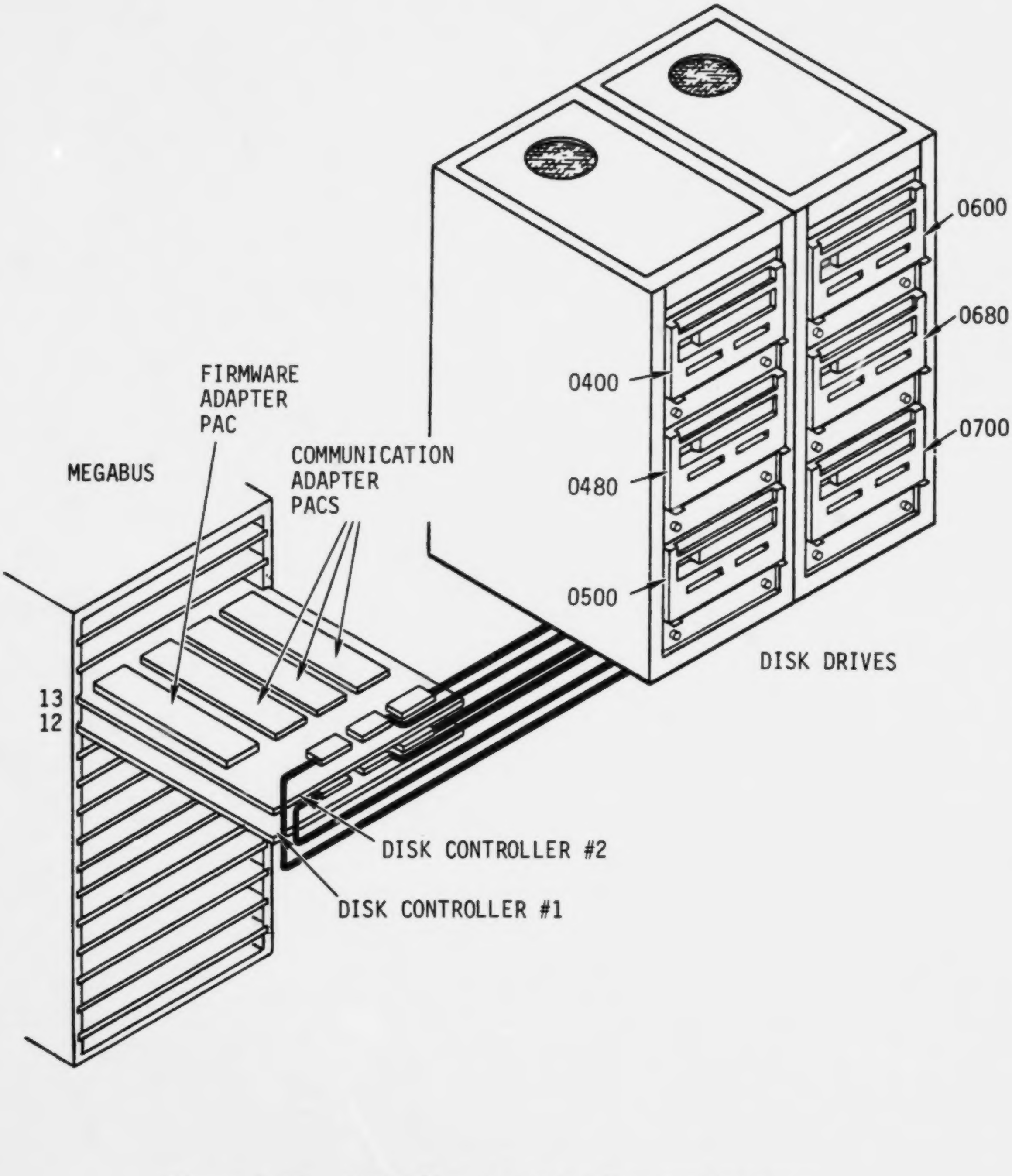

0600
0680
0700
FIRMWARE ADAPTER PAC
0400
COMMUNICATION ADAPTER PACS
MEGABUS
0480
0500
DISK DRIVES
13
12
DISK CONTROLLER #2
DISK CONTROLLER #1

Figure 1-10. Controller to Disk Drive Configuration

A multiple device controller board (fig. 1-11) in slot 10 provides connection to the console terminal, console printer, and line printer. A similar controller board in slot 11 contains the real time clock adapter pac and provisions for optional diskette adapter pacs.

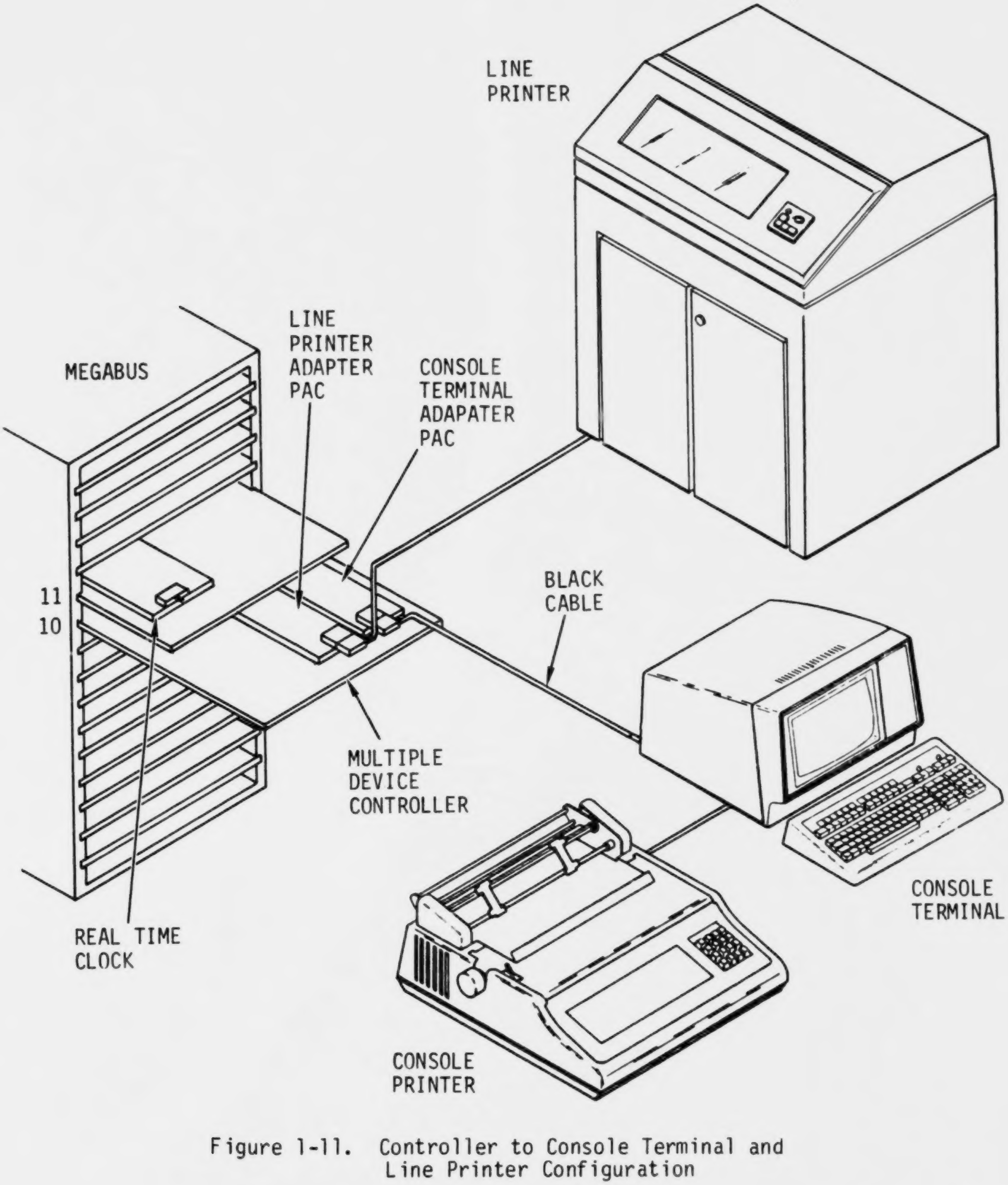

LINE PRINTER
MEGABUS
LINE PRINTER ADAPTER PAC
CONSOLE TERMINAL ADAPATER PAC
11
10
BLACK CABLE
MULTIPLE DEVICE CONTROLLER
CONSOLE TERMINAL
REAL TIME CLOCK
CONSOLE PRINTER

Figure 1-11. Controller to Console Terminal and Line Printer Configuration

Tape drive units are connected to the data recovery unit, magnetic tape controller (fig. 1-12) and its adapter pac in the CPU.

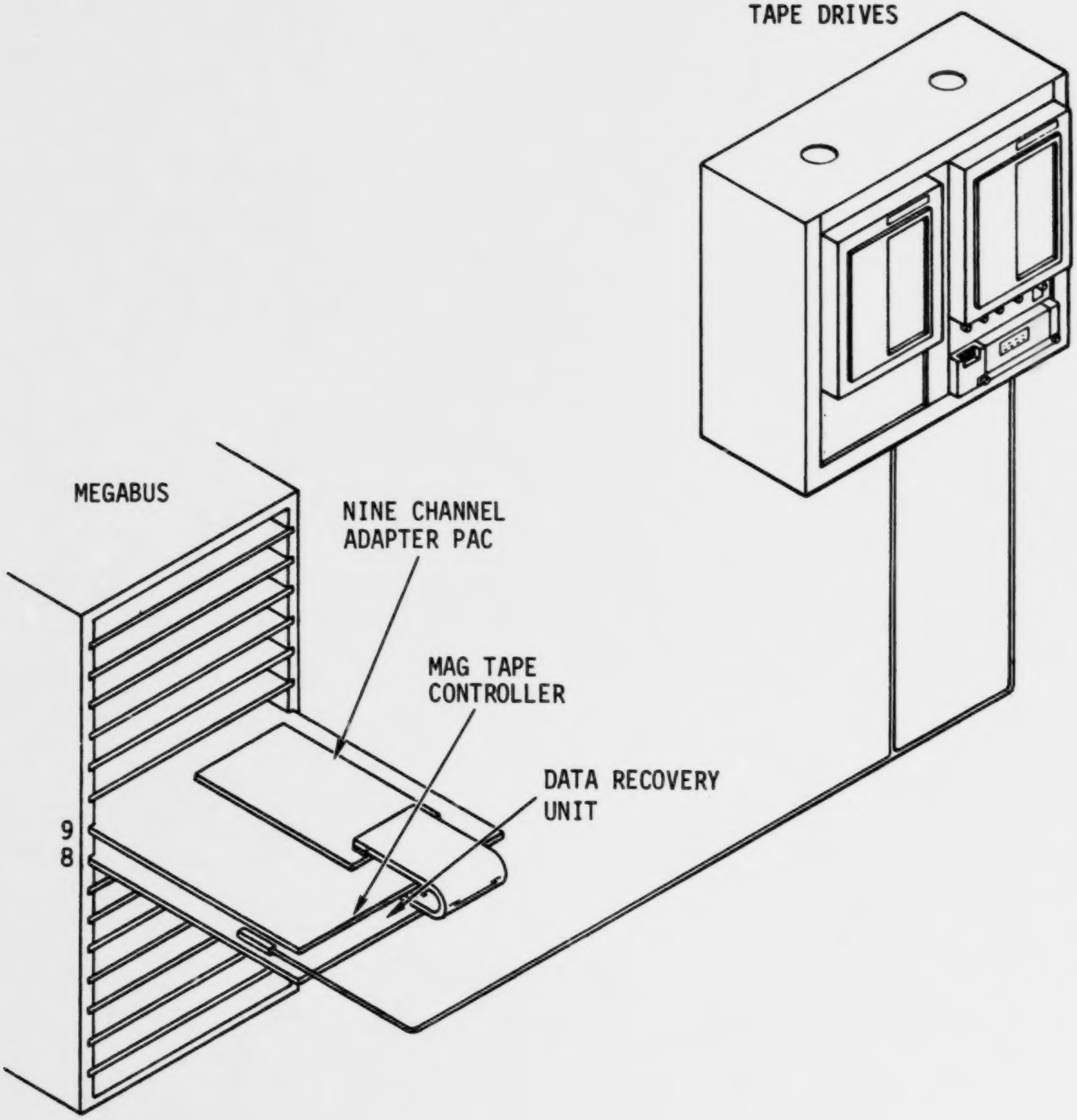

TAPE DRIVES
MEGABUS
NINE CHANNEL ADAPTER PAC
MAG TAPE CONTROLLER
DATA RECOVERY UNIT
9
8

Figure 1-12. Controller to Tape Drive Configuration

Multiline communications processor (MLCP) boards are located in slots 3, 4, 5, and 7 (fig 1-13). All of these MLCPs contain adapter pacs which interface with the communications subsystem. In addition, the I/O terminals in the van interface with communications subsystem devices through the MLCPs in slots 3 and 5. The card reader/punch communicates through the MLCP in slot 5.

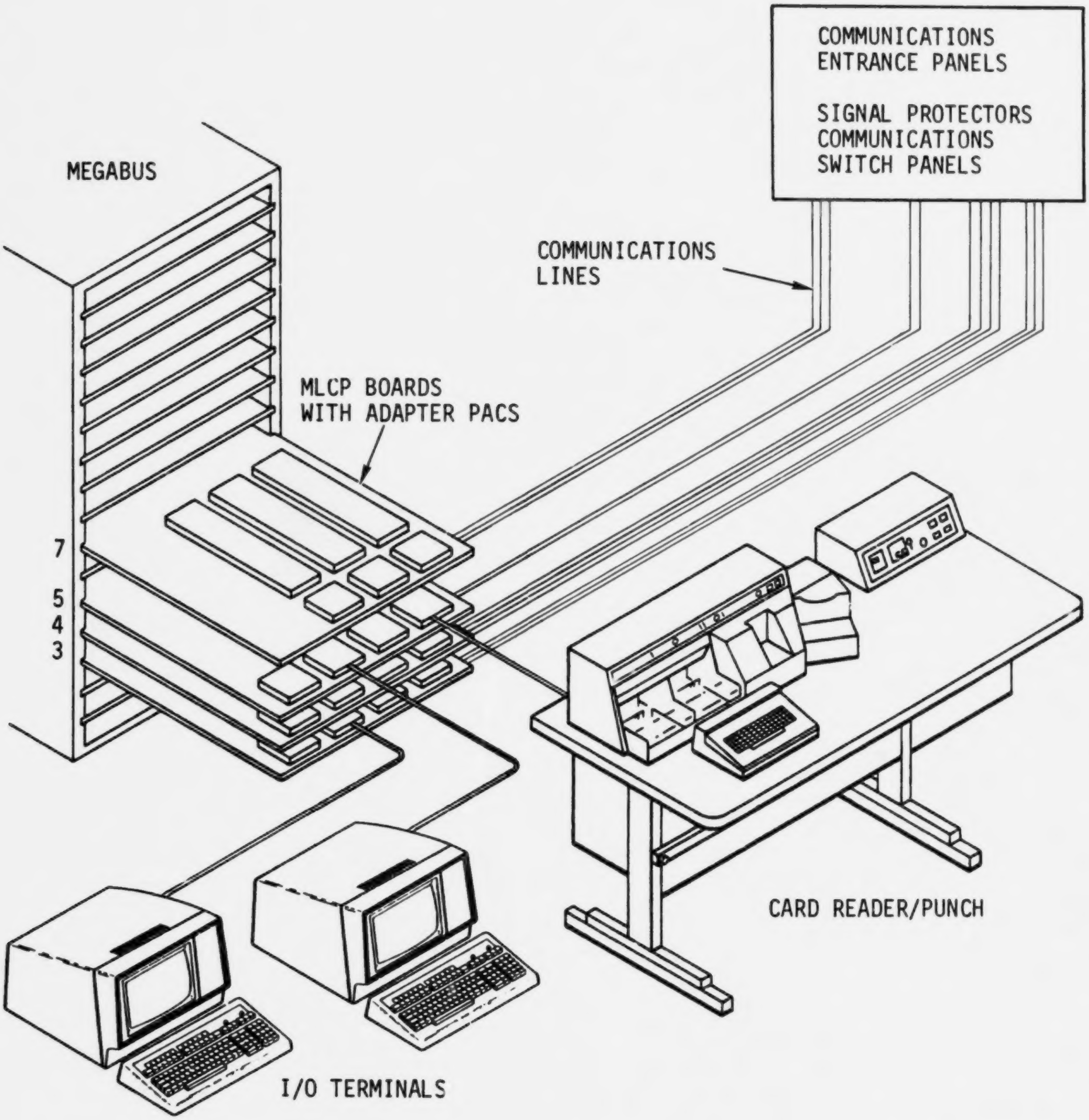

COMMUNICATIONS ENTRANCE PANELS
SIGNAL PROTECTORS
COMMUNICATIONS SWITCH PANELS
MEGABUS
COMMUNICATIONS LINES
MLCP BOARDS WITH ADAPTER PACS
7
5
4
3
CARD READER/PUNCH
I/O TERMINALS

Figure 1-13. MLCP to Peripheral and Communications Subsystem Configuration

The main memory controller board (fig. 1-14) is in slot 2. It contains all the logic needed to perform memory timing, refresh operations, address distribution and decoding, read/write functions, and bus interface operations. The controller board contains four memory adapter pacs which contain random access memory and error detection and correction capability.

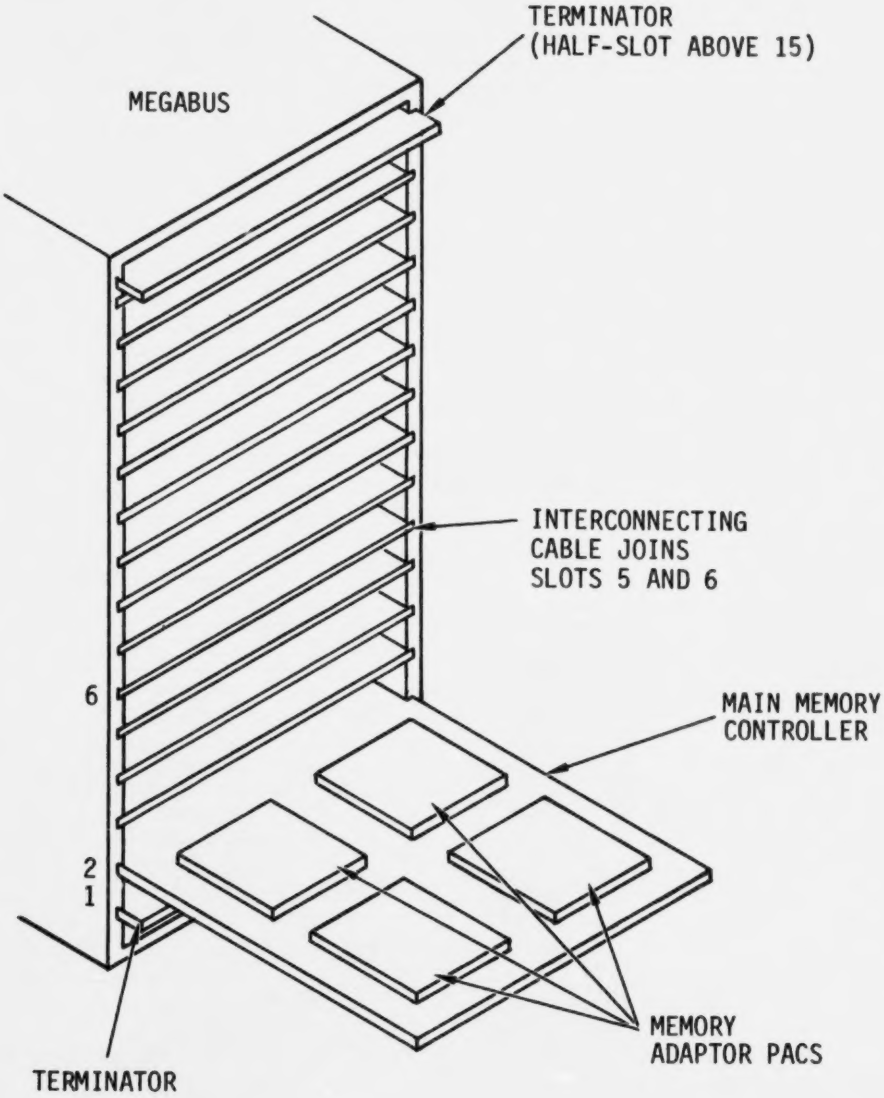
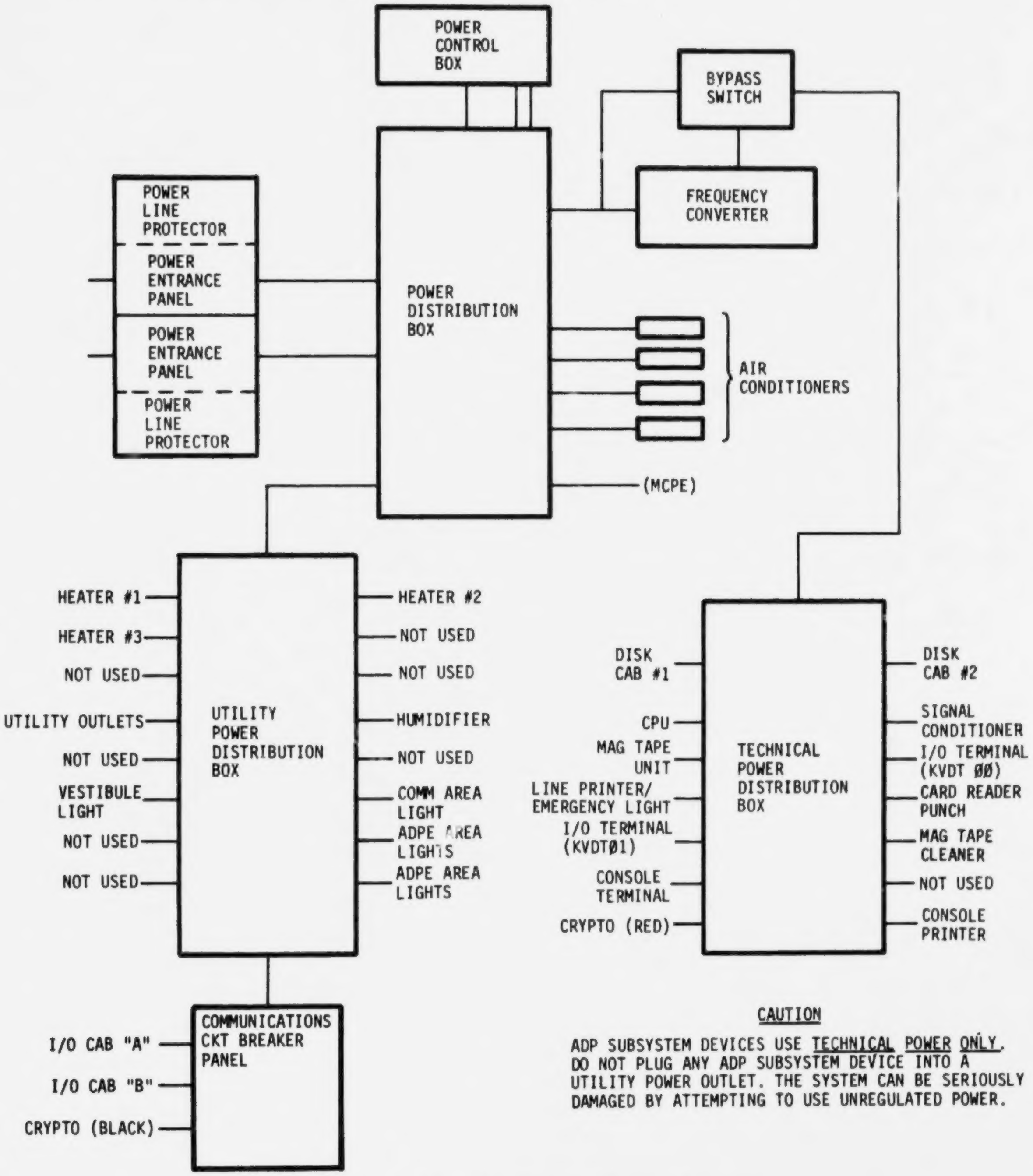

TERMINATOR
(HALF-SLOT ABOVE 15)
MEGABUS
INTERCONNECTING
CABLE JOINS
SLOTS 5 AND 6
6
MAIN MEMORY
CONTROLLER
2
1
MEMORY
ADAPTOR PACS
TERMINATOR

Figure 1-14. Main Memory Configuration

1-23. AC POWER SUBSYSTEM

Power for DAS3 (D/C) equipment is supplied either by a commercial power source or from the two auxiliary generators. Inside the van, the source power is divided into three main branches for use: Technical power for the ADP equipment; Utility power for the lights and most of the environmental equipment; Three-phase for the air conditioners and the NBC protective equipment.


POWER CONTROL BOX
BYPASS SWITCH
FREQUENCY CONVERTER
POWER LINE PROTECTOR
POWER ENTRANCE PANEL
POWER ENTRANCE PANEL
POWER LINE PROTECTOR
POWER DISTRIBUTION BOX
AIR CONDITIONERS
(MCPE)
HEATER #1
HEATER #3
NOT USED
UTILITY OUTLETS
NOT USED
VESTIBULE LIGHT
NOT USED
NOT USED
UTILITY POWER DISTRIBUTION BOX
HEATER #2
NOT USED
NOT USED
HUMIDIFIER
NOT USED
COMM AREA LIGHT
ADPE AREA LIGHTS
ADPE AREA LIGHTS
DISK CAB #1
CPU
MAG TAPE UNIT
LINE PRINTER/ EMERGENCY LIGHT
I/O TERMINAL (KVDT01)
CONSOLE TERMINAL
CRYPTO (RED)
TECHNICAL POWER DISTRIBUTION BOX
DISK CAB #2
SIGNAL CONDITIONER
I/O TERMINAL (KVDT 00)
CARD READER PUNCH
MAG TAPE CLEANER
NOT USED
CONSOLE PRINTER
I/O CAB "A"
I/O CAB "B"
CRYPTO (BLACK)
COMMUNICATIONS CKT BREAKER PANEL

CAUTION

ADP SUBSYSTEM DEVICES USE TECHNICAL POWER ONLY. DO NOT PLUG ANY ADP SUBSYSTEM DEVICE INTO A UTILITY POWER OUTLET. THE SYSTEM CAN BE SERIOUSLY DAMAGED BY ATTEMPTING TO USE UNREGULATED POWER.

Figure 1-15. Ac Power Block Diagram

1-24. ENVIRONMENTAL SUBSYSTEM

The environment inside the van is controlled by four air conditioners, three portable heaters, and a humidifier (fig. 1-16). There are also provisions for the installation of NBC protective equipment.

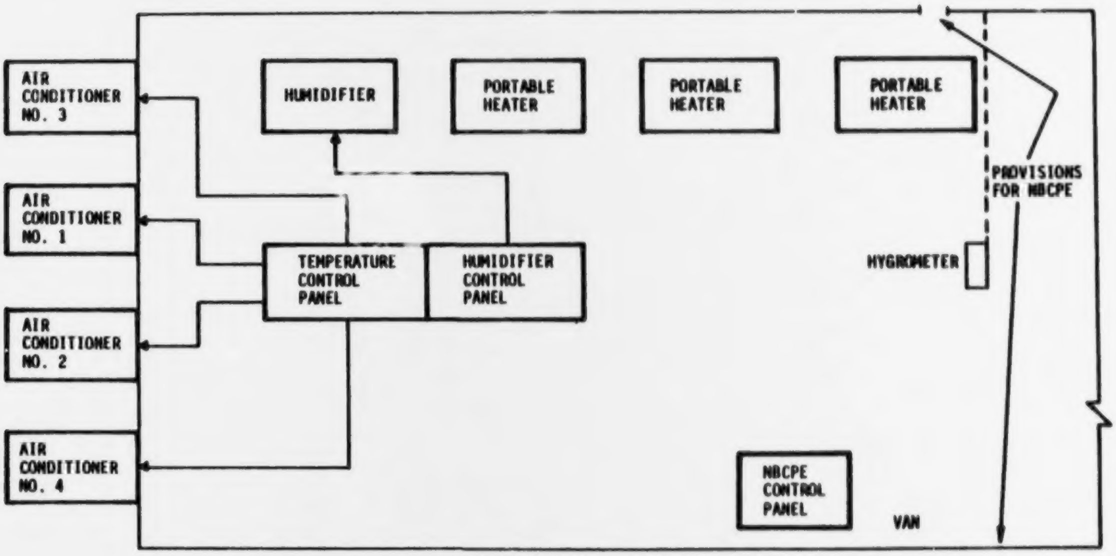

AIR CONDITIONER NO. 3
AIR CONDITIONER NO. 1
AIR CONDITIONER NO. 2
AIR CONDITIONER NO. 4
HUMIDIFIER
PORTABLE HEATER
PORTABLE HEATER
PORTABLE HEATER
TEMPERATURE CONTROL PANEL
HUMIDIFIER CONTROL PANEL
PROVISIONS FOR NBCPE
HYGROMETER
NBCPE CONTROL PANEL
VAN

Figure 1-16. Environmental Subsystem Block Diagram

The flow of air (fig. 1-17) in the van is handled by a constant velocity duct feeding a series of ceiling vents. The return is through filters. Washable filters are supplied.

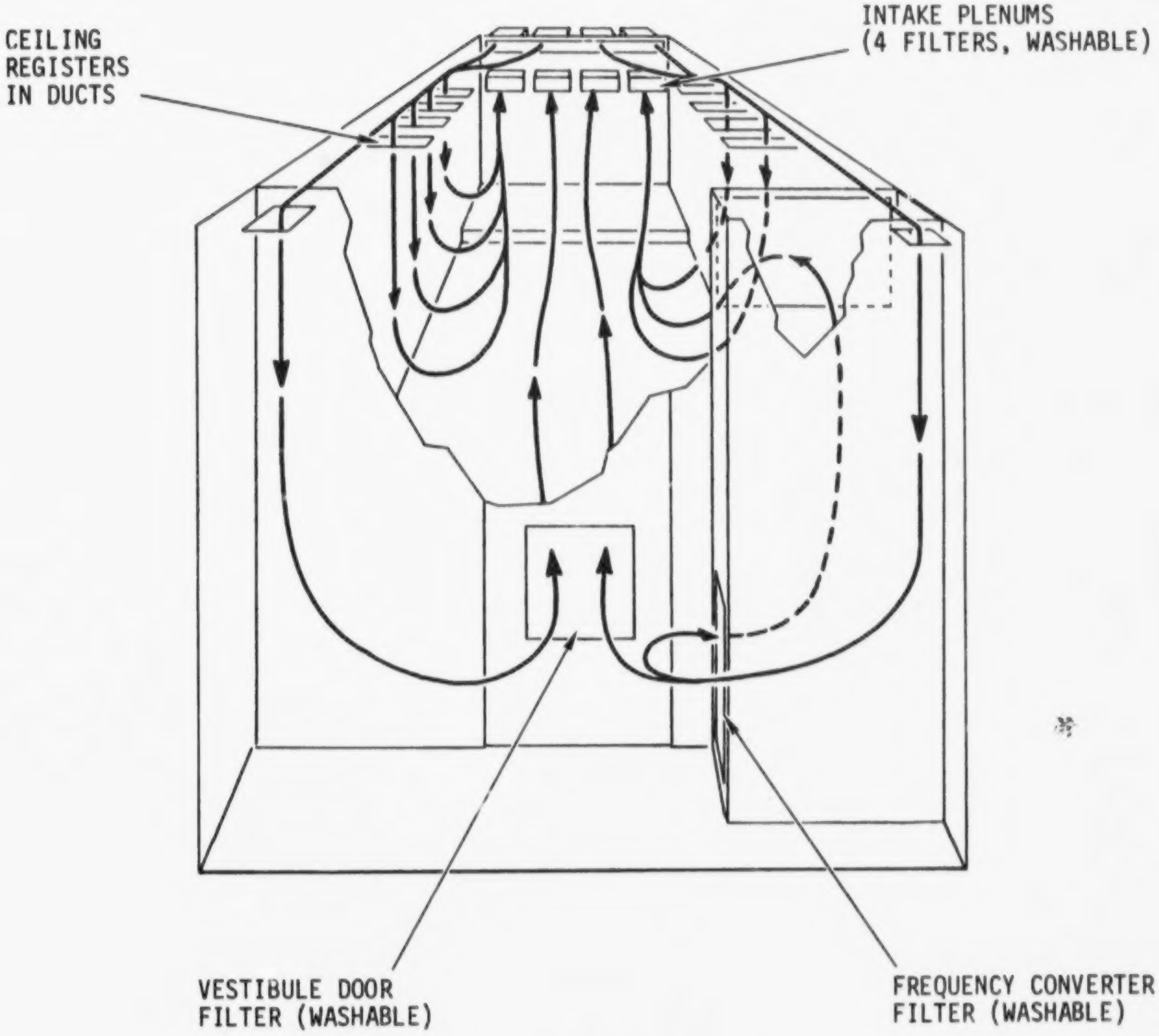

CEILING REGISTERS IN DUCTS
INTAKE PLENUMS (4 FILTERS, WASHABLE)
VESTIBULE DOOR FILTER (WASHABLE)
FREQUENCY CONVERTER FILTER (WASHABLE)

Figure 1-17. Air Filtering and Distribution Configuration

Section III. TECHNICAL PRINCIPLES OF OPERATION

1-25. GENERAL

This section describes how DAS3 (D/C) operates as a system. It also describes functional modes of operation and operator responsibilities.

1-26. FUNCTIONAL DESCRIPTION

DAS3 (D/C) is an automated data processing unit mounted in a van. Its function is to relocate, set up quickly, and be ready to provide unit support within four hours under temperature extremes or within two hours under normal ambient conditions.

The van is completely self supporting. All required power is available from two mobile diesel generators. Power may also be obtained, where available, from commercial power sources.

1-27. AC POWER SUBSYSTEM

120/208 V ac (50 or 60 Hz) 3-phase power is supplied to the van at the power entrance panel (fig. 1-18). Two power cables and pigtail adapters hook up to the power plant or a commercial power source. Presence of power is indicated inside the van by amber indicators on the power arrestor boxes. There are two indicators for each line. The power distribution box (para 1-19) contains circuit breakers for the main power lines which distribute ac power through the system.

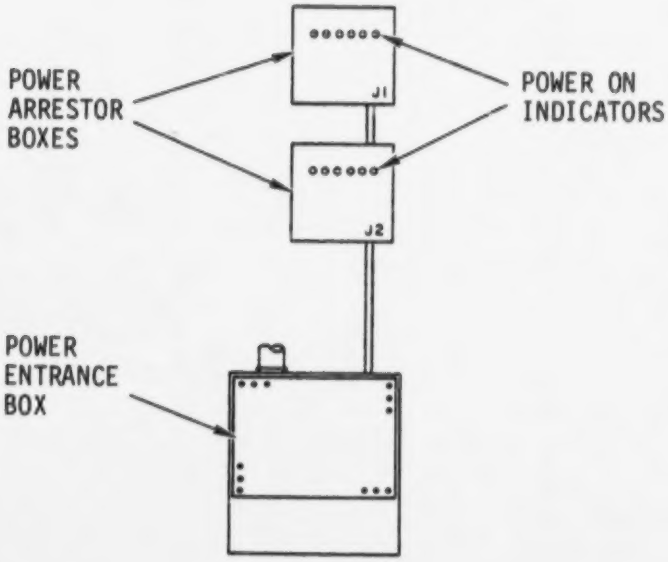
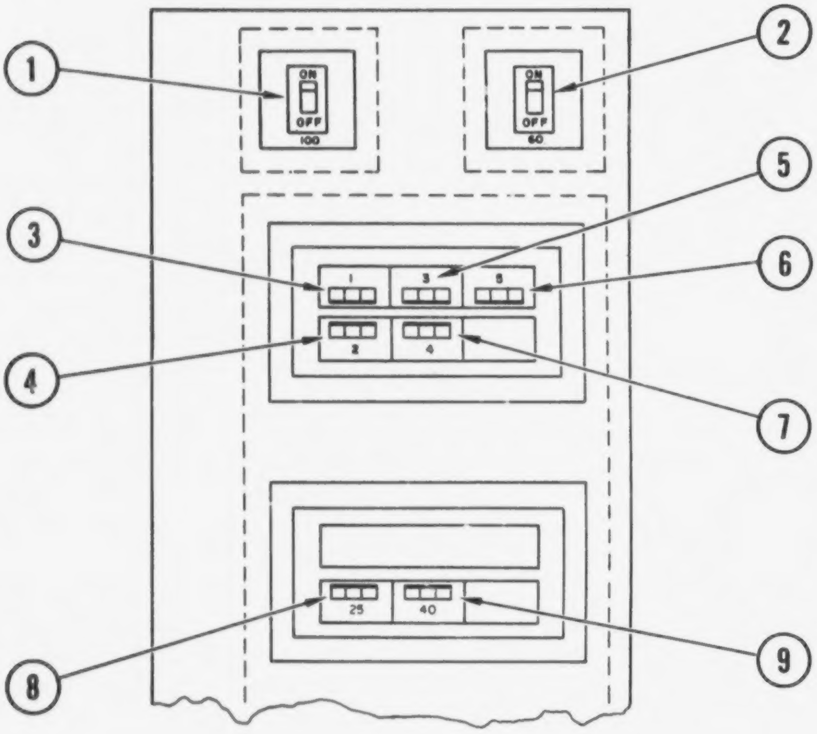


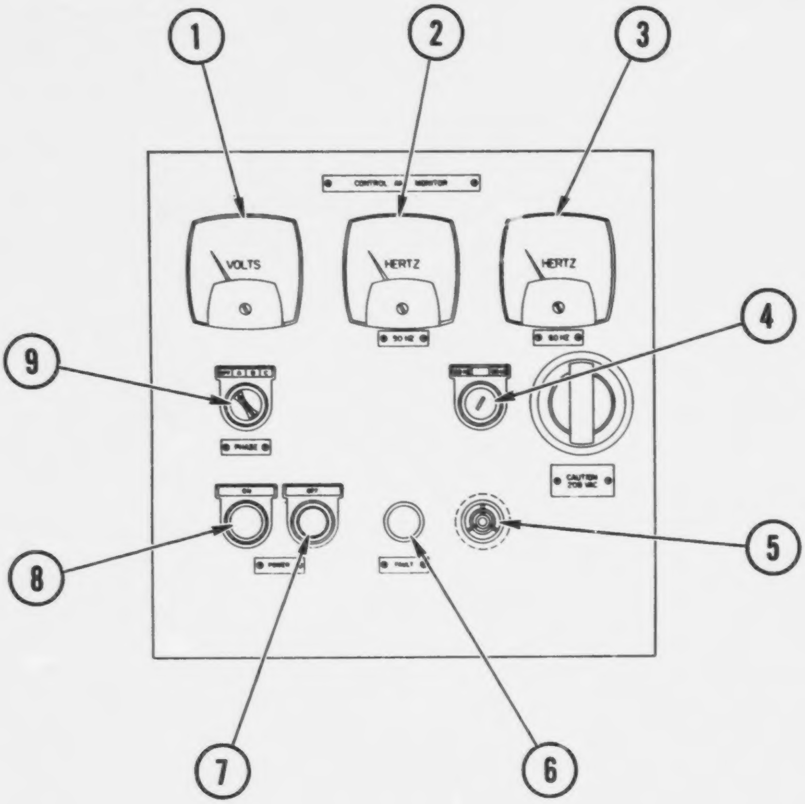
Figure 1-18. Power Entrance Panel



①	CB100 main circuit breaker	Controls power from power entrance panel to air conditioners and NBC circuit.
②	CB60 main circuit breaker	Controls power from power entrance panel to tech and utility power distribution boxes.
③	CB1 3-phase ganged circuit breaker	Controls power to air conditioner No. 1.
④	CB2 3-phase ganged circuit breaker	Controls power to air conditioner No. 2.
⑤	CB3 3-phase ganged circuit breaker	Controls power to air conditioner No. 3.
⑥	CB5 3-phase ganged circuit breaker	Controls power to NBC connector.
⑦	CB4 3-phase ganged circuit breaker	Controls power to air conditioner No. 4.
⑧	CB30 3-phase ganged circuit breaker	Controls power to utility power distribution box and communications circuit breaker box.
⑨	CB40 3-phase ganged circuit breaker	Controls power to tech power box through bypass switch or frequency converter.

Figure 1-19. Power Distribution Box

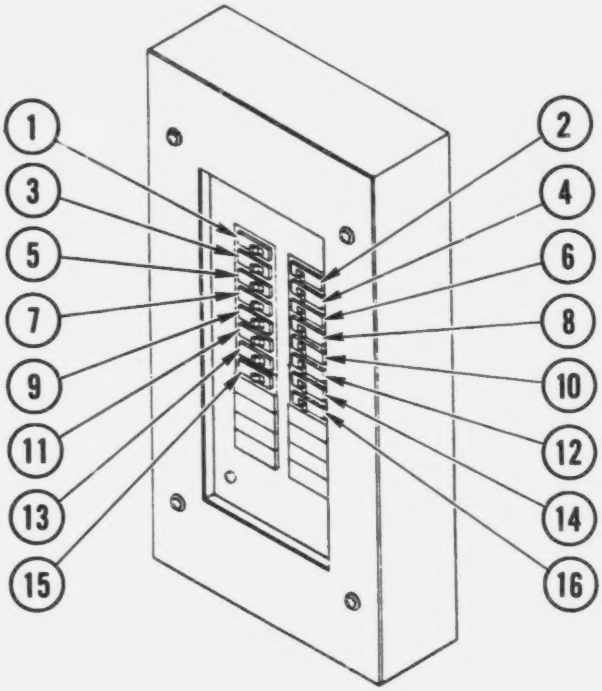
You may monitor the source power using the controls and indicators mounted on a power control box (fig. 1-20). If the power is adequate, power up the van using the ON button.


1
2
3
CONTROL AND MONITOR
VOLTS
HERTZ
HERTZ
50 HZ
60 HZ
4
9
PHASE
CAUTION
208 VAC
ON
OFF
8
POWER
FAULT
5
7
6

①	Voltmeter	Indicates input voltage of selected phase.
②	Frequency Meter	Indicates frequency of 50 Hz input power when selected.
③	Frequency Meter	Indicates frequency of 60 Hz input power when selected.
④	Selector Switch (key operated)	Activates correct frequency meter. Set to frequency of input power.
⑤	Horn	Alarm sounds when faulty power is applied.
⑥	FAULT Light	Indicator lights when faulty power is applied, operates with horn.
⑦	OFF	Pushbutton switch to turn off power to van.
⑧	ON	Pushbutton switch to turn on power to van.
⑨	PHASE	4-position switch which selects phase to be fed to voltmeter. In OFF position, voltmeter is inactive.

Figure 1-20. Power Control Box

Utility power for lights, receptacles, heaters, and the humidifier is controlled by circuit breakers located in the utility power distribution box (fig. 1-21).



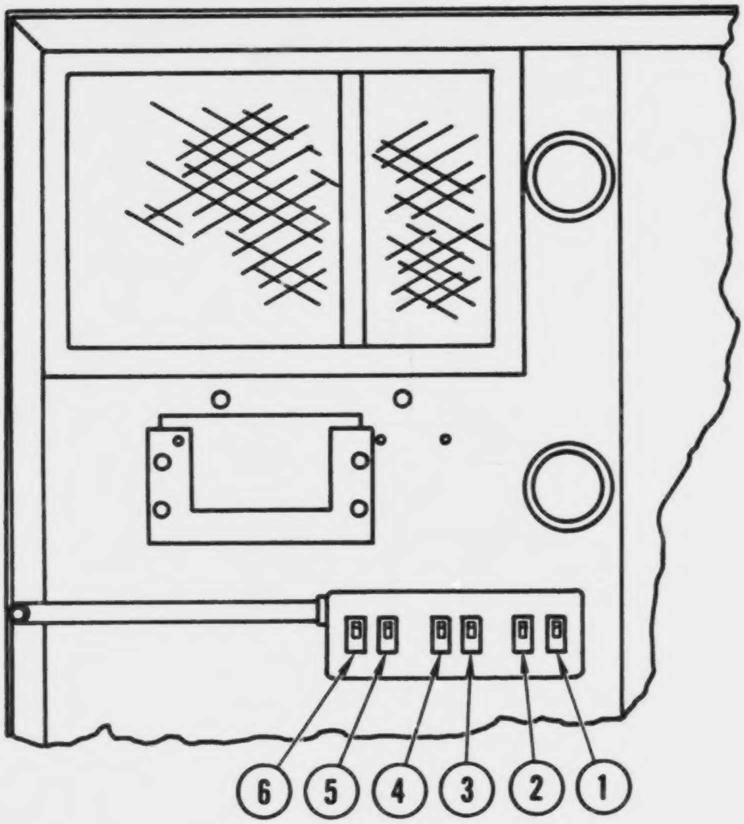
① Heater #1 (curbside, rear)
② Heater #2 (curbside, middle)
③ Heater #3 (curbside, forward)
④ Not Used
⑤ Not Used
⑥ Not Used
⑦ Utility Outlets
⑧ Humidifier
⑨ Not Used
⑩ Not Used
⑪ Vestibule Lights
⑫ Comm Area Lights
⑬ Not Used
⑭ ADPE Area Lights
⑮ Not Used
⑯ ADPE Area Lights

Figure 1-21 Utility Power Distribution Box

Interior light switch panel is located on wall directly in front of utility power distribution box. The clock, hydrometer and first aid kit are located above the switches.

NOTE

Inside the rear door two ON and OFF switches control the fluorescent lights and incandescent lights in vestibule.



① Fluorescent lights by comm cabinets

② Fluorescent lights by card reader punch

③ Fluorescent lights center of van

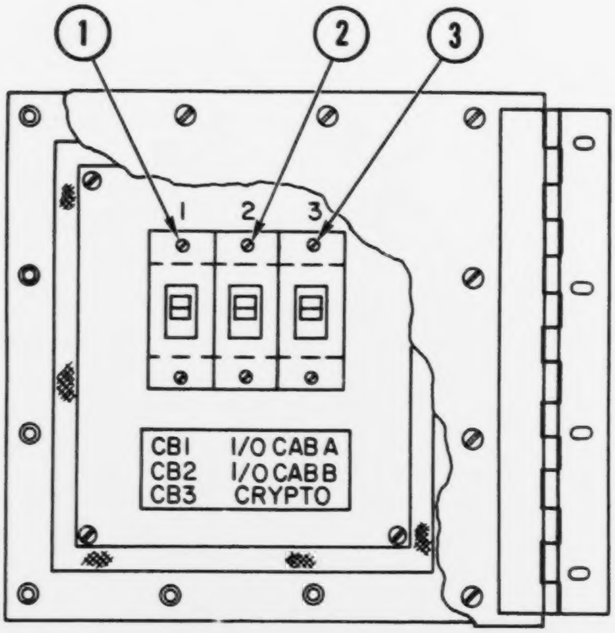
④ Fluorescent lights three rear panels (2 lamps)

⑤ Fluorescent lights three rear panels (2 lamps)

⑥ Incandescent lights interior of van

Figure 1-22. Interior Light Switch Panel

Power to the A and B cabinets and the crypto cabinet is controlled by CB 30 in the power distribution box and by circuit breakers located in the communications power box (fig. 1-23). The breakers in this box are usually left ON and used only by maintenance personnel to cut power to only one of the cabinets when maintenance is required.



① I/O Cabinet A

② I/O Cabinet B

③ Crypto Cabinet

Figure 1-23. Communications Power Box

Technical power for the ADP subsystem must be high quality, 60 Hz, 115 V ac. Raw source power from the power distribution box or conditioned power from the frequency converter is selected at a bypass switch (fig. 1-24).

If the raw power available is 50 Hz or a badly regulated 60 Hz, the power must pass through the frequency converter before it goes to the tech power box. In this case, you must set the bypass switch to the FREQUENCY CONVERTER ON position.

If power is stable, you may set the bypass switch in the BYPASS ON position. The bypass switch must be in one of the ON positions. Power will not pass through the bypass switch to the tech power box if the switch is in the OFF position.

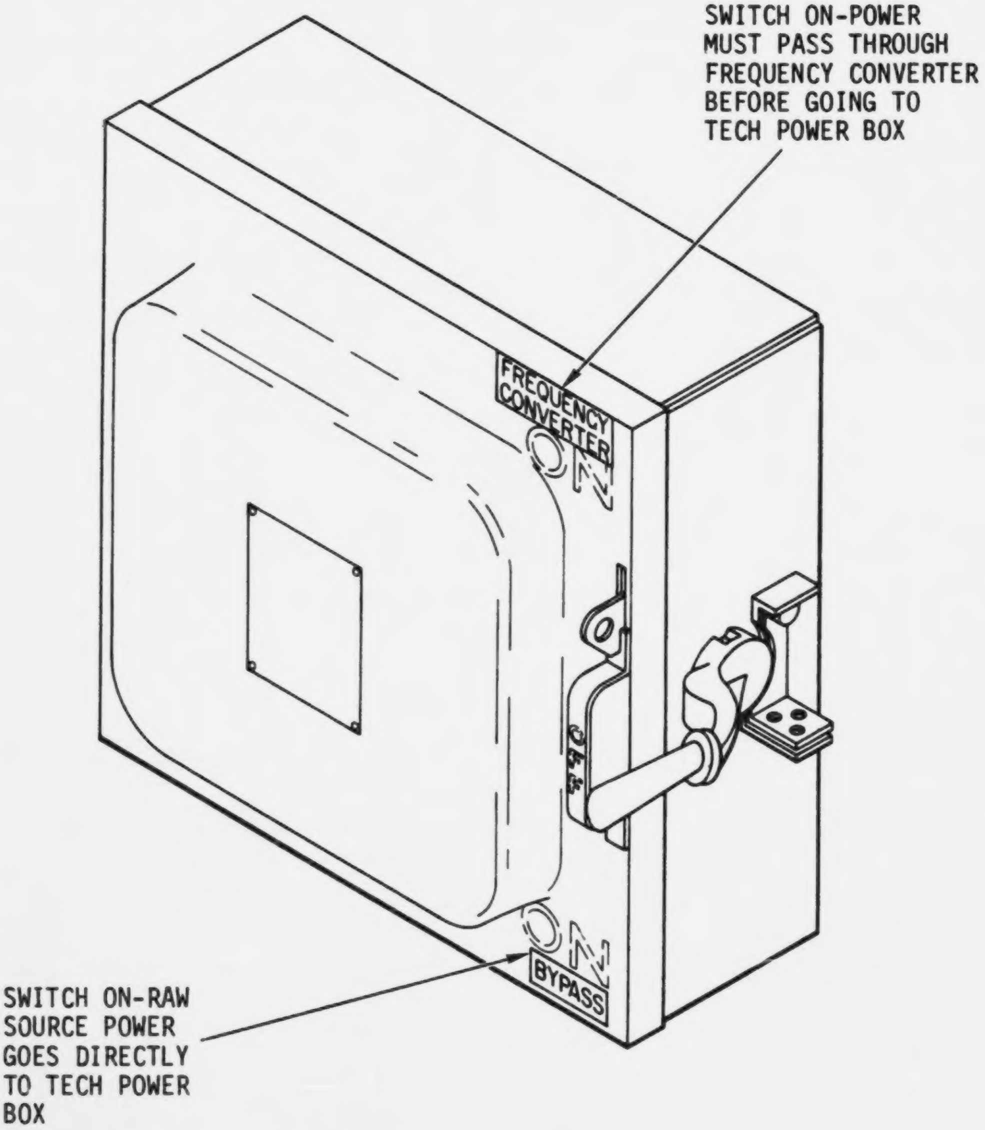
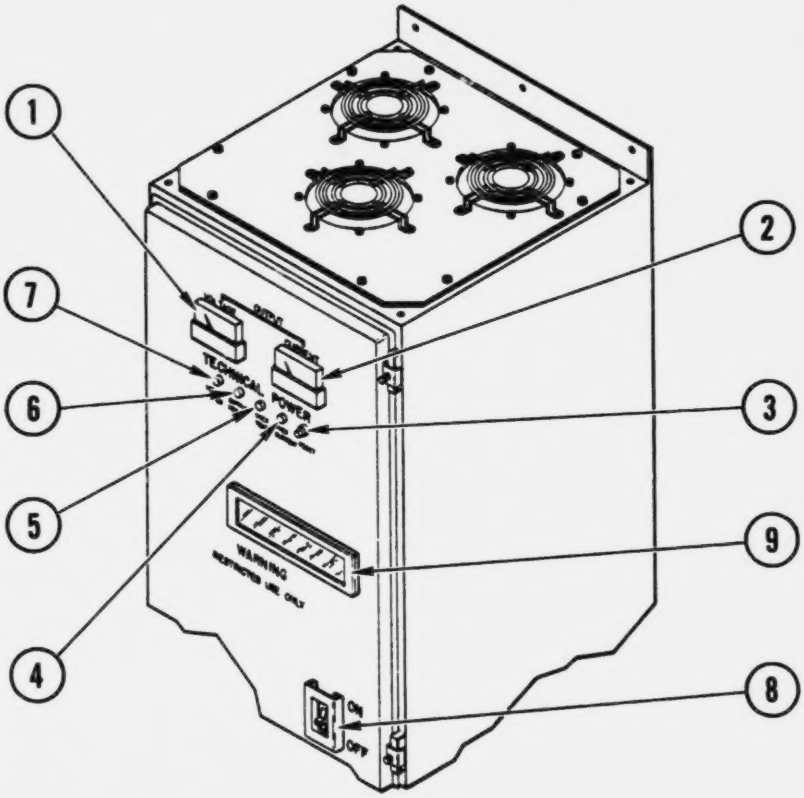

SWITCH ON-POWER MUST PASS THROUGH FREQUENCY CONVERTER BEFORE GOING TO TECH POWER BOX
FREQUENCY CONVERTER
ON
ON
BYPASS
SWITCH ON-RAW SOURCE POWER GOES DIRECTLY TO TECH POWER BOX

Figure 1-24. Bypass Switch

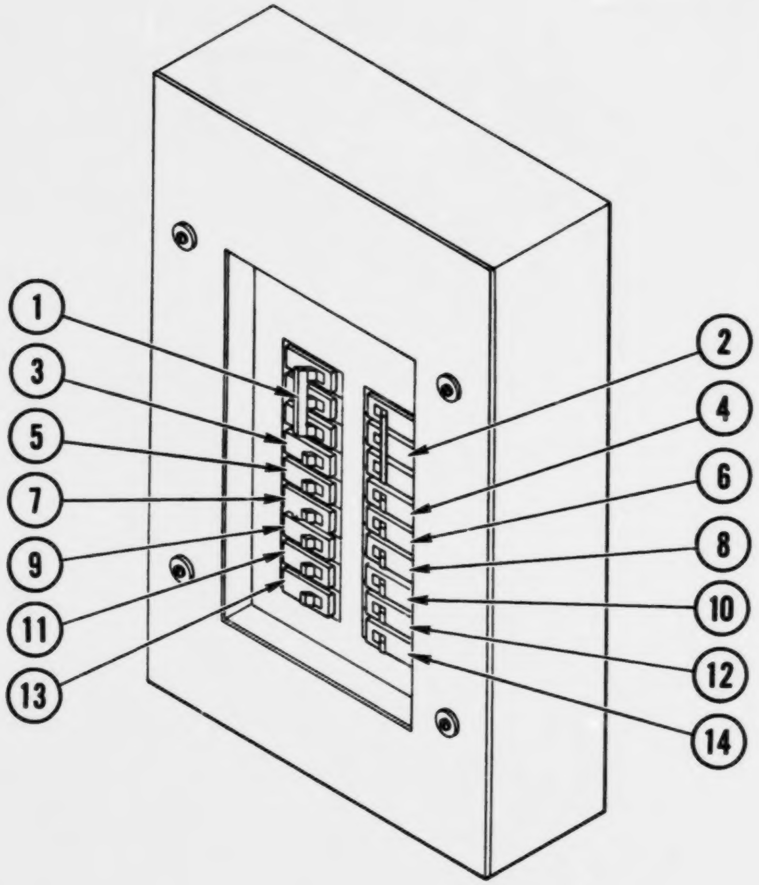
The frequency converter (fig. 1-25) conditions raw incoming power into a high quality regulated 60 Hz, 115 V ac. The output supplies technical power through the bypass switch to the ADP subsystem. The frequency converter is always used when source power is the auxiliary power plant or unstable commercial power.



① Voltmeter	Indicates output voltage. Calibrated 0-150 volts.
② Ammeter	Indicates output current. Calibrated 0-100 amps.
③ RESET	Pushbutton switch. Restores operation after overcurrent trip, if fault has been corrected.
④ OVERCURRENT	Red indicator lights when too much current is drawn, and circuit breaker trips.
⑤ OVER TEMP	Red indicator lights when temperature of inverter exceeds. 140°F (96°C). Goes out when temperature returns to normal. May flicker during startup.
⑥ OUTPUT POWER	Green indicator shows when output power is available.
⑦ INPUT POWER	White indicator shows input power applied to frequency converter and circuit breaker is ON.
⑧ ON-OFF	Circuit breaker functions as ON-OFF switch. Trips on overcurrent or if door is opened when unit is ON.
⑨ Window	Window to permit view of maintenance indicators inside cabinet.

Figure 1-25. Frequency Converter

Technical power for ADP equipment is distributed and controlled by circuit breakers in the tech power box (fig. 1-26). Each breaker is dedicated to a specific ADP device or cabinet.

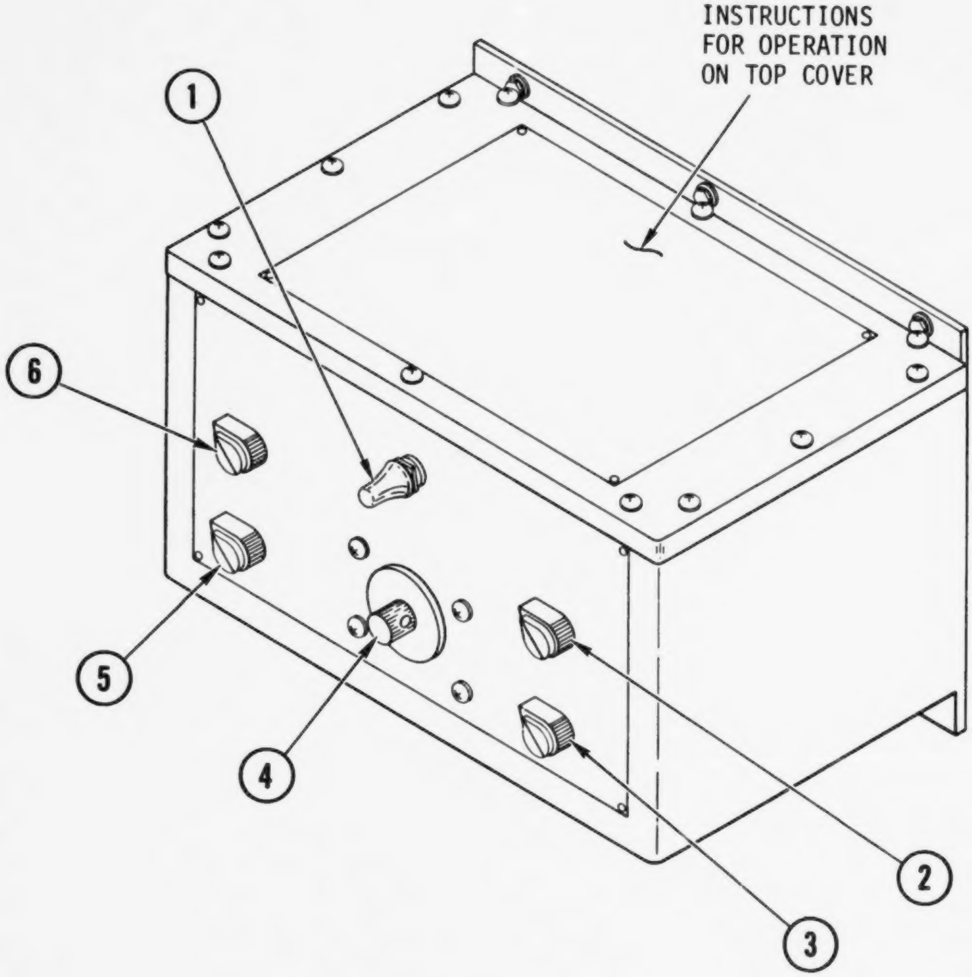


① Disk Cabinet #1
② Disk Cabinet #2
③ CPU
④ Signal Conditioner (103J Modem)
⑤ Mag Tape Unit
⑥ I/O Terminal (KVDT 00)
⑦ Line Printer/Emergency Light
⑧ Card Reader/Punch
⑨ I/O Terminal (KVDT 01)
⑩ Mag Tape Cleaner
⑪ Console Terminal
⑫ Not used
⑬ Crypto (red)
⑭ Console Printer

Figure 1-26. Tech Power Box

1-28. ENVIRONMENTAL SUBSYSTEM

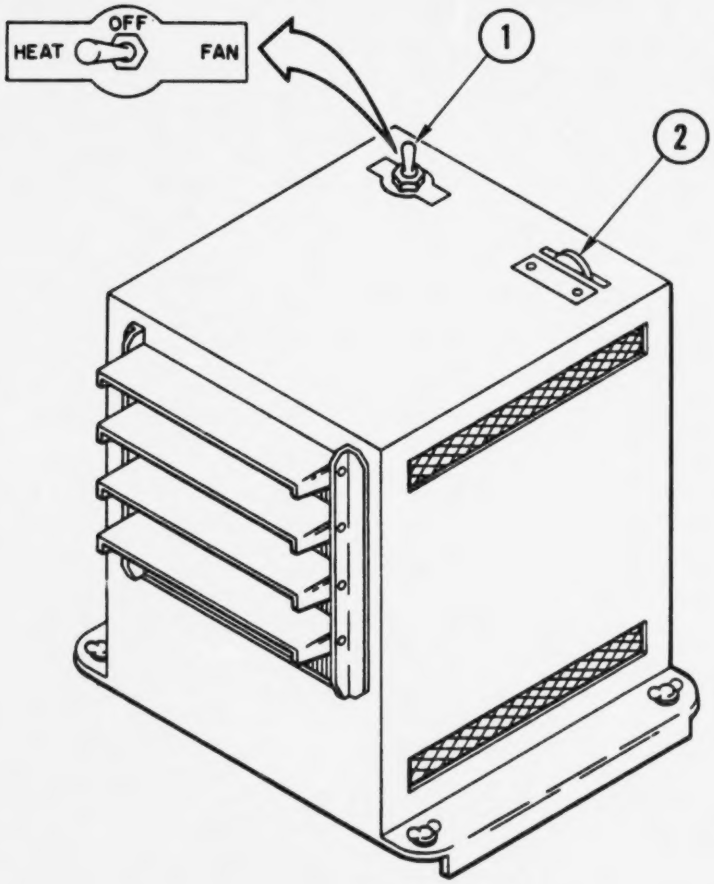
The heating, ventilation, and cooling of the van unit are controlled from a single panel on the front of the temperature control unit (fig. 1-27). All four air conditioners are controlled from the panel. The air conditioning units supply all the normal heating or cooling requirements of the system.



① Fan Switch	Sets HIGH or LOW fan speed
② Mode Control	Selects HI or LO HEAT, COOL, VENTILATE, or OFF for air conditioner No. 2
③ Mode Control	Selects operating mode for air conditioner No. 4
④ Thermostat	Controls van temperature by activating or shutting off selected air conditioners. Inactive when mode switch is in HI HEAT
⑤ Mode Control	Selects operating mode for air conditioner No. 3
⑥ Mode Control	Selects operating mode for air conditioner No. 1

Figure 1-27. Temperature Control Panel

Three portable electric heaters (fig. 1-28) are stored in the van unit for use as auxiliary heaters in extremely cold weather or when the van has been inactive for a long period of time and you wish to prepare the system for operating in a short time. They are used to bring the internal temperature of the ADP equipment to a stable 60°F or higher.



①	Toggle Switch	3-position switch to select HEAT-OFF-FAN
②	Thermostat	When switch (1) is in HEAT position, controls heating coil operation. The 70 marked on the dial is center of its range.

Figure 1-28. Portable Heater

Relative humidity in the van must be maintained between 20% and 50%. The ideal humidity range is 30% to 40%. The humidistat (fig. 1-29) is dial operated as indicated, and the dial settings are determined by consulting the relative humidity on a hygrometer. The hygrometer is usually located near an operator station. Horn will sound when water level in tank drops below required mark. Pump tank must be refilled when horn sounds.

The humidity level is raised by operating the humidifier (fig. 1-29) and may be lowered by operating the air conditioning units. The outside air vents may be used also if the humidity of the outside air is suitable. Operating ranges must be maintained at all times. You will need to monitor the temperature and the relative humidity carefully so that water never condenses on the ADP equipment.

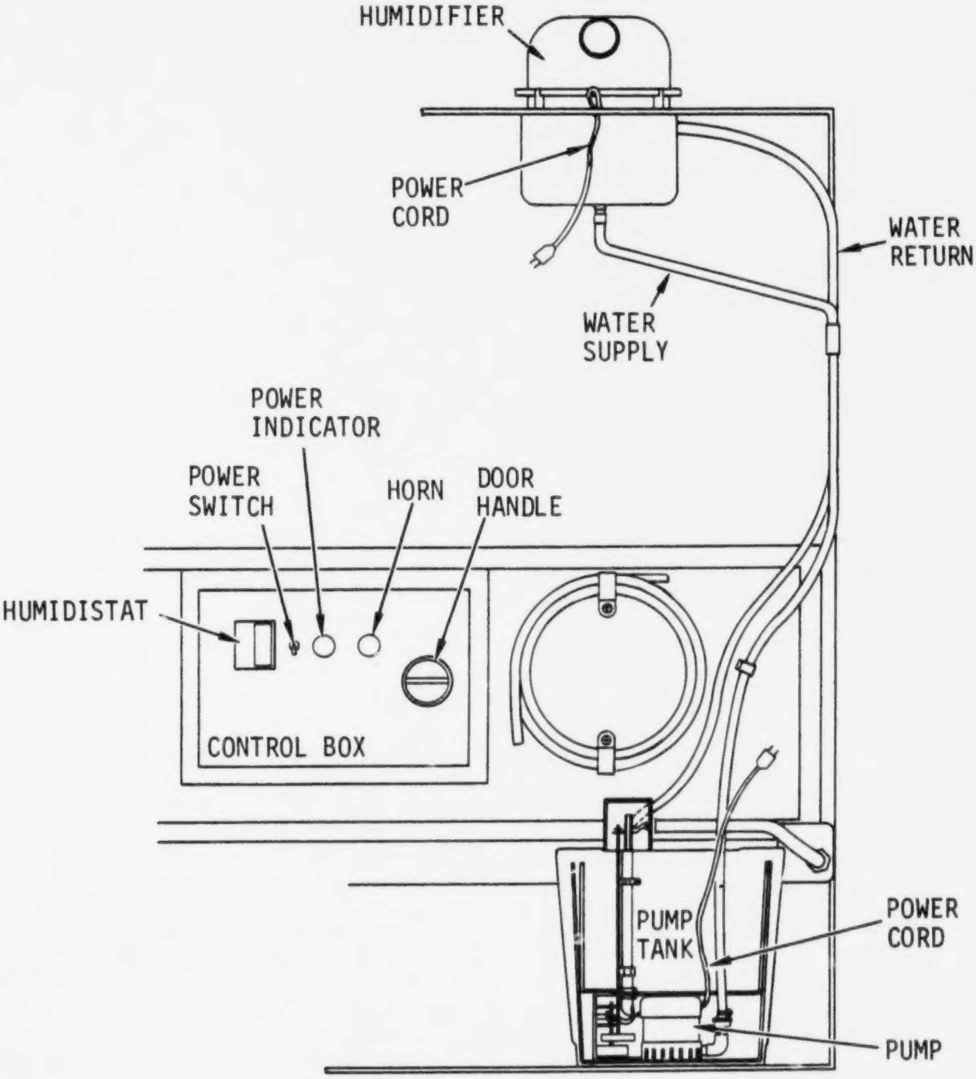

HUMIDIFIER
POWER CORD
WATER RETURN
WATER SUPPLY
POWER INDICATOR
POWER SWITCH
HORN
DOOR HANDLE
HUMIDISTAT
CONTROL BOX
PUMP TANK
POWER CORD
PUMP

Figure 1-29. Humidity Control Equipment

1-29. ADP SUBSYSTEM

All the other subsystems in DAS3 (D/C) support the ADP subsystem in performing its mission of mobile, self-contained data processing.

The individual devices used to make up the ADP subsystem interface in a specific way to perform the task of data management.

The ADP subsystem consists of the following high-speed general-purpose minicomputer components:

- Central processor unit (CPU) and control panel
- Console terminal and console printer
- I/O terminals
- Disk drive units
- Tape drive units
- Line printer
- Card reader/punch
- Magnetic tape cleaner (support equipment)

When the ADP components are first powered ON, the CPU main memory is blank. You self-test the CPU at startup by running the quality logic tests (QLTs). If the QLTs run okay, you cycle up the disk drive containing the system disk pack (usually drive 0400) and those drives containing work packs required for the job. At this point, the CPU main memory is still blank. The operating system (GCOS6) is on the system disk pack waiting to be loaded into memory. The executive software (MOD400) in the operating system contains a bootstrap loader, which you call up at the control panel. The loader is transmitted to the CPU each time you boot. This provides the CPU with a basic memory from which it can recognize and respond to system commands from the console terminal. Once the system is booted, you can call up any utility program available on MOD400. These utility programs don't perform any application, they only control the operation of various I/O and auxiliary memory devices. They also provide access to operating system instructions which reside on the system disk pack along with MOD400. The application instructions may be contained on the system pack or on other disk packs such as Work A or Work B. When you are ready to process a job, you command the operating system to load those application instructions into main memory. At this point the ADP subsystem is ready to go to work for you.

The ADP subsystem may be used with many kinds of work programs such as personnel records, inventory, payroll, etc.

A typical applications program used with DAS3 (D/C) is the Direct Support Unit Standard Supply System (DS4). You can use this program to:

- Conduct supply support transactions
- Access, correlate, and accumulate data
- Perform inventory management
- Accomplish replenishment actions
- Prepare reports and lists

System programs contain specific hardware instructions for handling the application program commands.

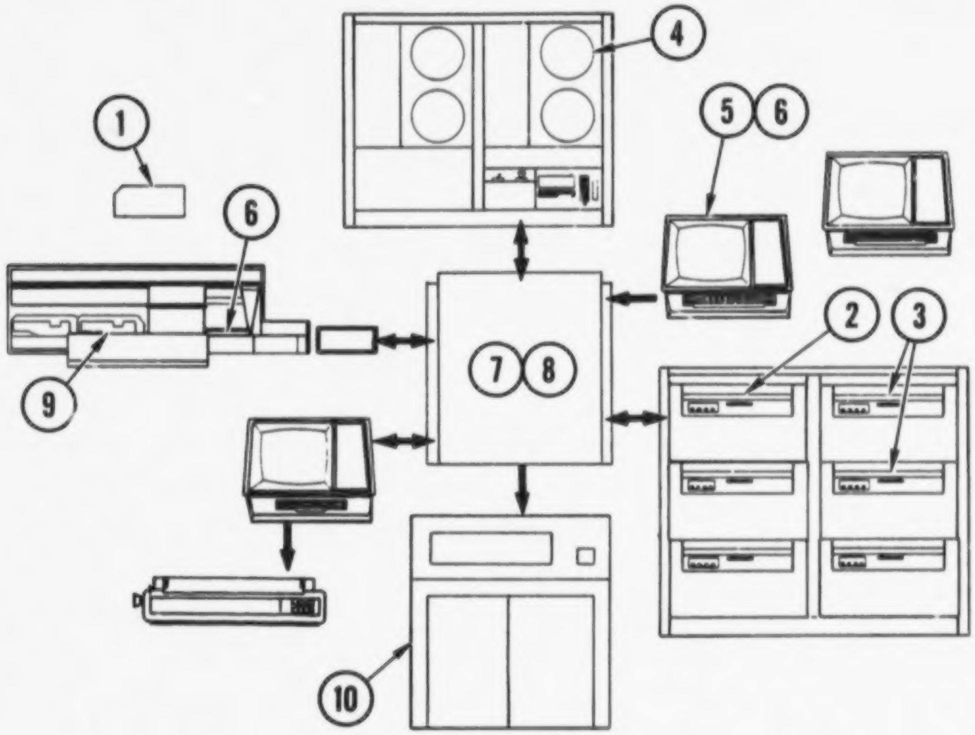
1-30. MODES OF OPERATION

The system is highly adaptable to many different data handling requirements. The normal modes of operation include:

- Single Entry (High Priority) Mode
- Batch (Medium and Low Priority) Mode
- Remote Batch or Single Entry Mode

When a request for data handling is brought to the van, the request will be prepared at the support unit in the form of a pre-punched card. The user will manually fill in the number, priority, identification, and nature of the request. High priority requests are processed immediately. Medium and low priority requests are collected and held for a daily batch cycle.

Single Entry Mode (High Priority) Operation (fig. 1-30).



① Data request form is brought into van vestibule window and is handed to the operator.

② System disk pack is loaded.

③ Applications disk pack and work disk pack are loaded.

④ Tapes are loaded on tape drive.

⑤ Operator selects program from menu at I/O terminal and enters commands to CPU.

⑥ Operator enters request data into CPU memory at card reader/punch or I/O terminal.

⑦ Under direction of program, CPU processes data.

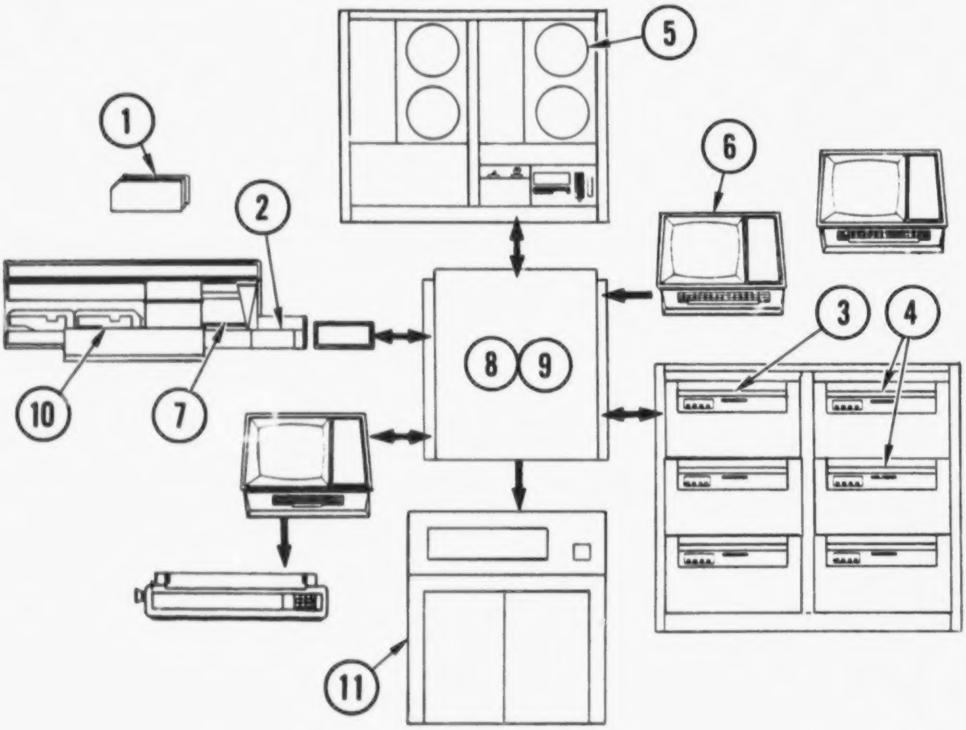
⑧ CPU searches files for information necessary to complete or refuse the transaction

⑨ Card reader/punch produces output document as required.

⑩ Line printer prints out transactions.

Figure 1-30. Single Entry Mode (High Priority)

Batch Entry Mode (Low Priority) Operation (fig. 1-31).



① Data request cards are brought to van, accumulated, and stacked for batch run.

② When batch is ready, cards are loaded into hopper.

③ System disk pack is loaded.

④ Application disk pack and work disk pack are loaded.

⑤ Tapes are loaded on tape drive.

⑥ Operator selects program from menu at I/O terminal and enters commands to CPU.

⑦ Card reader/punch reads data automatically from cards and enters data in CPU memory.

⑧ Under direction of program, CPU processes data.

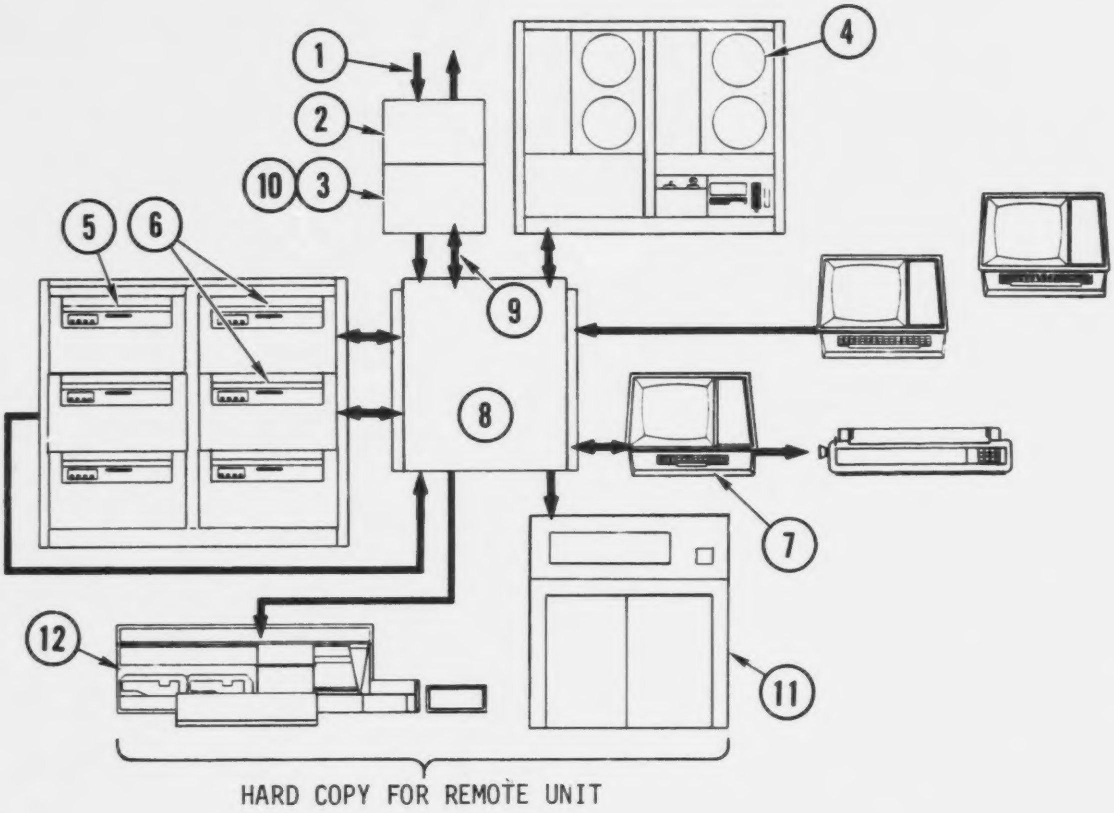
⑨ CPU searches files for information necessary to complete or refuse the transactions.

⑩ Card reader/punch generates output document as required.

⑪ Line printer prints out transactions.

Figure 1-31. Batch Entry Mode (Low Priority)

Remote Batch or Single Entry Mode Operation (fig. 1-32).



① Panel switch set for field wire inputs.
② Data is received from remote ADP equipment.
③ Data goes through either a modem or a converter.
④ Tapes are loaded on tape drive.
⑤ System disk pack is loaded.
⑥ Application and work disk packs are loaded.
⑦ Operator selects program from menu and enters commands at remote I/O terminal.
⑧ CPU processes data received through modem or converter.
⑨ Updated data is sent back through modem or converter.
⑩ Data path continues back through modem or converter through signal entrance panel to remote ADP equipment.
⑪ Line printer prints out transaction.
⑫ Punched cards and line printer output is sent to original source.

Figure 1-32. Remote Batch or Single Entry Mode

1-31. COMMUNICATIONS SUBSYSTEM

The DAS3 (D/C) communications subsystem has world wide voice and data transmission capability. When cables originating at the signal entrance panels of the DAS3 (D/C) are connected to AUTODIN or a telephone system, its range for voice and data communication is limited only by the telephone system to which it is hooked.

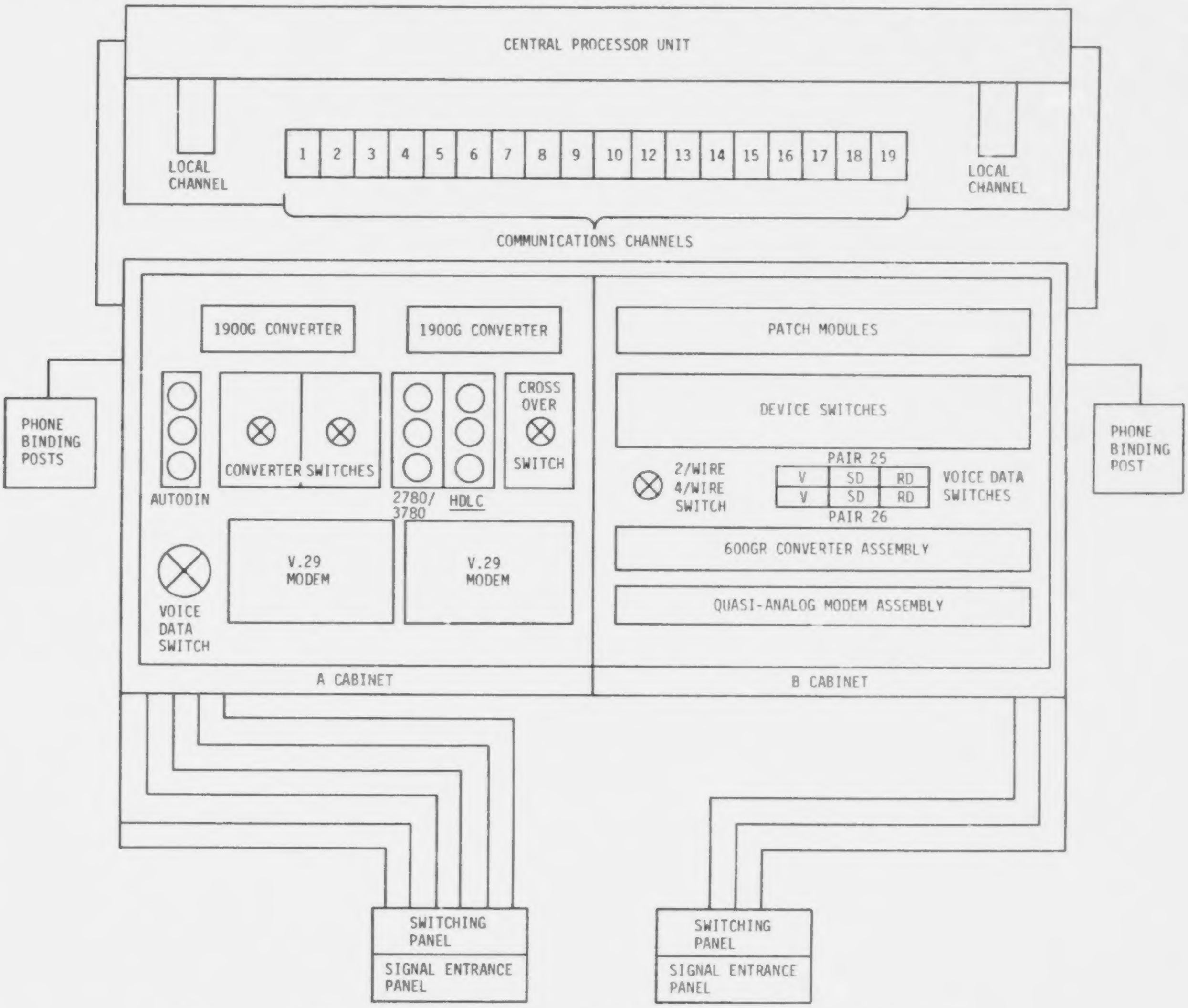

CENTRAL PROCESSOR UNIT
LOCAL CHANNEL
1
2
3
4
5
6
7
8
9
10
12
13
14
15
16
17
18
19
LOCAL CHANNEL
COMMUNICATIONS CHANNELS
1900G CONVERTER
1900G CONVERTER
PATCH MODULES
PHONE BINDING POSTS
AUTODIN
CONVERTER SWITCHES
2780/3780
HDLC
CROSS OVER SWITCH
DEVICE SWITCHES
2/WIRE 4/WIRE SWITCH
PAIR 25
V
SD
RD
V
SD
RD
PAIR 26
VOICE DATA SWITCHES
PHONE BINDING POST
V.29 MODEM
V.29 MODEM
VOICE DATA SWITCH
600GR CONVERTER ASSEMBLY
QUASI-ANALOG MODEM ASSEMBLY
A CABINET
B CABINET
SWITCHING PANEL
SIGNAL ENTRANCE PANEL
SWITCHING PANEL
SIGNAL ENTRANCE PANEL

Figure 1-33. Communications Subsystem Functional Diagram

a. Functional Description. Each DAS3 (D/C) has 18 operational channels and one reserve channel (circuits) which are direct connected to the CPU. It is through these channels that data is either received or transmitted. Each channel can operate independently but simultaneously. Two of these channels are for the two local KVDTs in each van, but these are linked only to the CPU and are used for daily, in van operations. Each DAS3 (D/C) has an autocall/autoanswer capability which allows data to be transmitted or received while the DAS3 (D/C) is unattended. A DAS3 (D/C) can be direct connected by land lines to another DAS3 (D/C), or another computer with a similar protocol. The DAS3 (D/C) also can receive and transfer data through AUTODIN. As many as twelve remote units which can be direct wired to the DAS3 (D/C), other units called interactive remote terminals can send or receive data transmissions provided they can interface with the DAS3 (D/C) through the quasi-analog modem assembly. Requests for data access come into the DAS3 (D/C) from remote communications subsystems through signals routed through and switched at the signal entrance panels of the A and B cabinets. You may select the proper data access path to and from the CPU through either modems or converters. This operation is accomplished by a series of switching or patching procedures to effect the data transfer link.

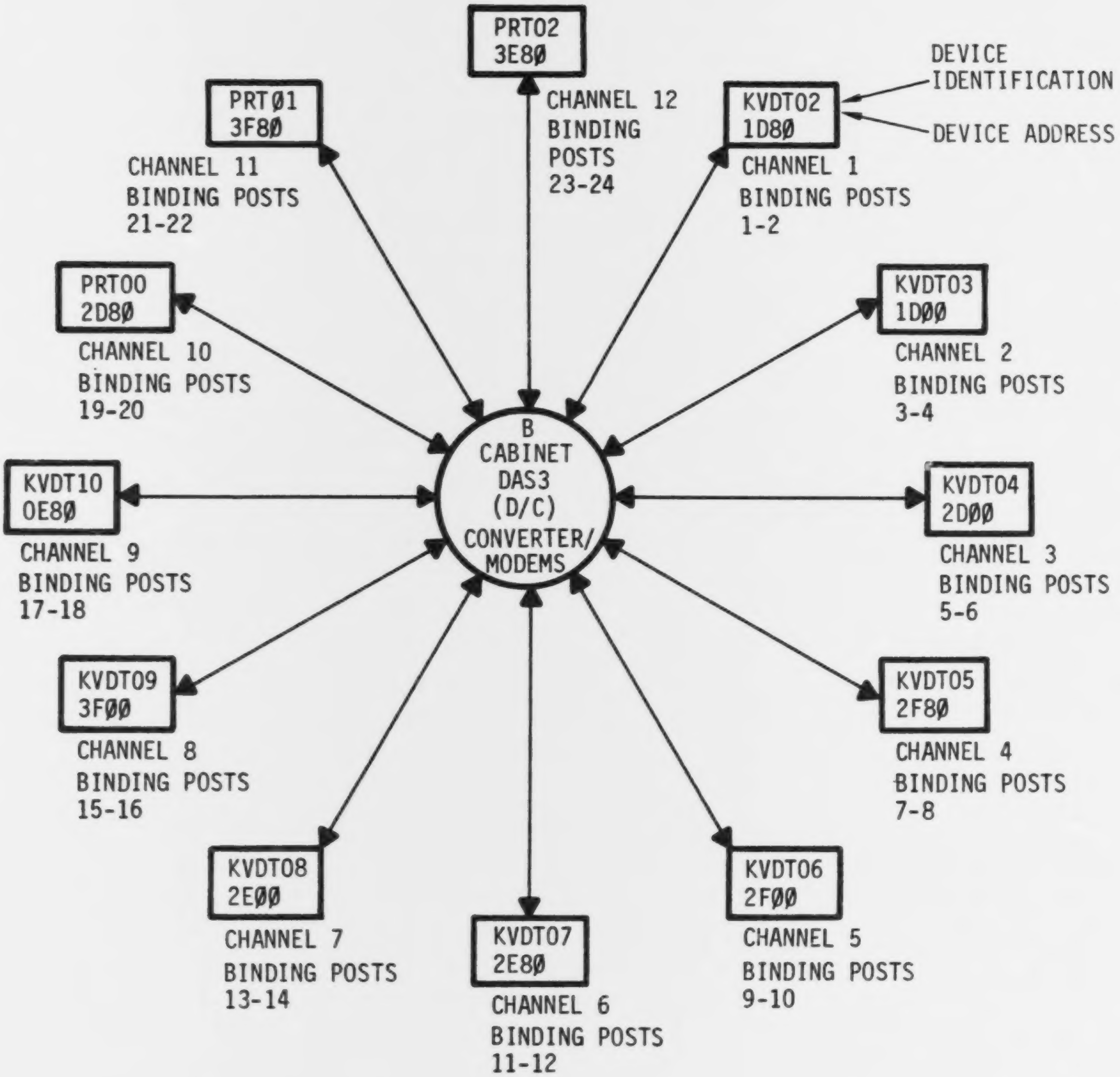
b. Subsystem Components. In order to transfer or receive data transmissions you must be familiar with some of the key components of the subsystem. Data signals come into the signal entrance panels over the cables as either digital signals or analog signals. All data signals must be directed to either a modem or a converter. Table 1-1 depicts the modems and converters used in the DAS3 (D/C).

(1) Modem. Translates analog signals (continuous electrical impulses transmitted over telephone wires) into digital signals which the CPU understands. In the A cabinet there are two V.29 modems. Modem 1 is the AUTODIN modem and Modem 2 is used for bulk data transfer between another DAS3 (D/C) or an IBM 360 computer. By using the crossover switch and a patch cord, Modem 2 can be used as a backup modem to Modem 1. The reverse is also true. In the B cabinet there is a quasi-analog modem assembly containing 16 modem slots. Slots 1 thru 12 (fig 1-34) contain an RM-2024 plug-in modem, one for each remote device that can be direct connected to the DAS3 (D/C). Slots 14 thru 16 are for the autodial/autoanswer modem boards. Slot 13, the synchronous channel, can be used for a choice of boards; the RM 12.12, RM-201B or RM-201C. Slots 14 and 15 contain RM-801A ACU dialer boards used to establish calls through the telephone circuits. Slot 16, the asynchronous channel, also uses a choice of boards; the RM-1030 or RM-12.12. In addition, the DAS3 (D/C) has another modem, the 103J. This low speed (0-300 bps) modem is used in conjunction with crypto equipment.

Table 1-1. Summary of Modem and Converter Baseline Modes

EQUIPMENT	LOCATION	FUNCTION	TRANSMISSION SPEED	TRANSMISSION MODE
1900G Converter Two each	A Cabinet	Data transmission 2 km or less over metallic lines	0-9600 bps	Synchronous/ Asynchronous
V.29 Modem Two each	A Cabinet	Data transmission DAS3 (D/C) to DAS3 (D/C) over a dedicated tie line for bulk data transfer and AUTODIN circuit	2400-9600 bps	Synchronous
600GR Converters 12 each Slots 1-12	B Cabinet	Data transmission DAS3 (D/C) to remote 2 km or less over metallic lines	0-9600 bps	Asynchronous
103J Modem One each	Spare Parts Cabinet	Interface with KY 68	0-300 bps	Synchronous/ Asynchrounous
Quasi-Analog-Modems 12 each RM2024 Slots 1-12	In Quasi Analog Modem Rack B Cabinet	Interface remote terminals to 10 km or less	1200-1800 bps	Synchronous/ Asynchronous
RM 12.12 modem One each Slot 13		Autocall/autoanswer	1200 bps	Synchronous
RM 1030 modem One each Slot 16		Autocall/autoanswer	300	Asynchronous

Slots 14 and 15 contain RM801A ACU dialer boards


PRT02
3E80
CHANNEL 12
BINDING
POSTS
23-24
DEVICE
IDENTIFICATION
DEVICE ADDRESS
PRT01
3F80
CHANNEL 11
BINDING POSTS
21-22
KVDT02
1D80
CHANNEL 1
BINDING POSTS
1-2
PRT00
2D80
CHANNEL 10
BINDING POSTS
19-20
KVDT03
1D00
CHANNEL 2
BINDING POSTS
3-4
B
CABINET
DAS3
(D/C)
CONVERTER/
MODEMS
KVDT10
0E80
CHANNEL 9
BINDING POSTS
17-18
KVDT04
2D00
CHANNEL 3
BINDING POSTS
5-6
KVDT09
3F00
CHANNEL 8
BINDING POSTS
15-16
KVDT05
2F80
CHANNEL 4
BINDING POSTS
7-8
KVDT08
2E00
CHANNEL 7
BINDING POSTS
13-14
KVDT07
2E80
CHANNEL 6
BINDING POSTS
11-12
KVDT06
2F00
CHANNEL 5
BINDING POSTS
9-10

KVDTxx - identifies remote terminal

PRTxx - identifies remote printer

Figure 1-34. Remote Device Address and Identification

(2) Converters. When data is being transmitted as digital signals over direct lines to a remote unit 2 km or less away, you will route the data signal through converters. A digital signal has a range of less than 50 feet from the CPU or terminal where it originates. To make an effective transfer of data beyond 50 feet you must amplify the signal. This is accomplished by the converter. In the A cabinet there are two 1900G converters. Converter number 1 is the AUTODIN converter and converter number 2 is for bulk data transfer between another DAS3 (D/C) or an IBM computer. By using the crossover switch and a patch cord, the number 2 converter can be used as a backup to the AUTODIN converter. The reverse is also true. In the B cabinet there is a 600GR converter assembly which contains 12 converter boards used to access the 12 remote terminals.

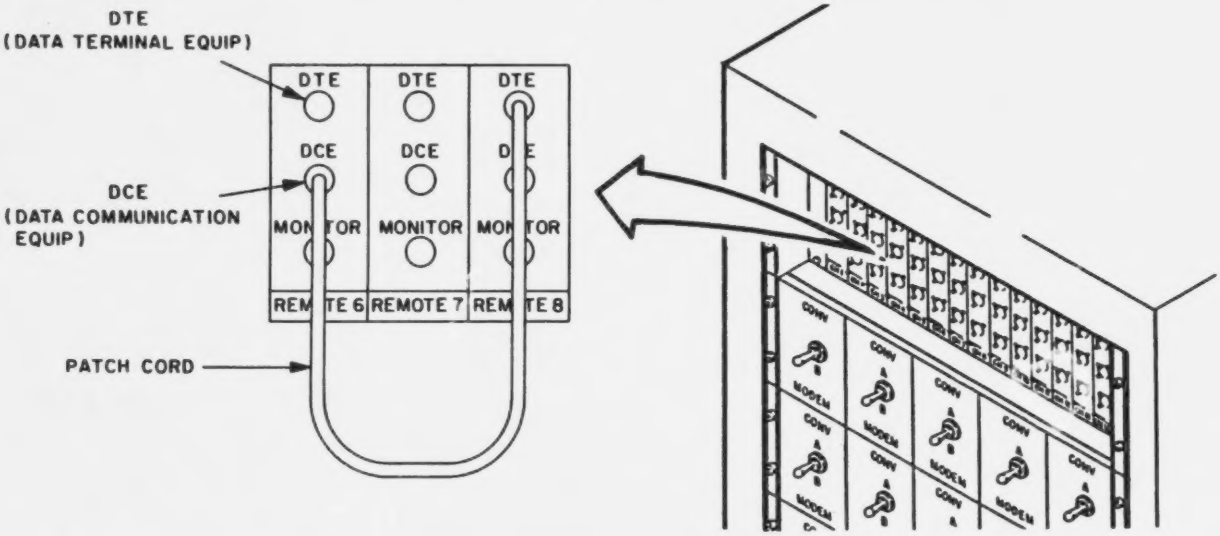


Figure 1-35. Typical Patch in B Cabinet

(3) Patch Modules. You will use the patch modules to change circuits in the event you must bypass faults on the line. The patch modules on the B cabinet permit you to bypass a faulty circuit by patching into another circuit. For example if data being transmitted to remote channel 8 was breaking down, you could route the signal through a patch to another channel such as channel 6 and keep the transmission going. Figure 1-35 shows you a patch between two channels in the B cabinet. In the A cabinet there are three patch modules. Patch 1 is the AUTODIN patch, patch 2 is the 2780/3780 line, patch 3 is the High Level Data Link Control (HDLC) line. Both are used in connection with each other for bulk data transfer between the DAS3 (D/C) and another DAS3 (D/C) or an IBM computer. If the AUTODIN channel is patched into patch module 2, the number 2 modem or the number 2 converter can be used as a backup unit for AUTODIN. The reverse is also true.

(4) Crossover Switch. Located in the A cabinet, the crossover switch can change the data path line from Channel 1 to Channel 2 from the signal entrance panel without rewiring the two channels. When the switch is in the normal position, the data path goes through either the AUTODIN (Number 1) V.29 modem or the AUTODIN (Number 1) 1900G converter to Channel 1 which is linked to binding posts 1 and 2. When the switch is placed in the crossover position, the communication line is switched to Channel 2, binding posts 3 and 4. This gives the AUTODIN capability a backup modem and converter. If a patch cord is placed in the AUTODIN DTE patch and linked to the middle or black patch DCE, the backup is

complete. The AUTODIN data exchange can proceed in the event its communication line fails. In the event the AUTODIN circuit and primary modem or converter are not in use, the AUTODIN modem and converter can be used as a backup for the number 2 modem or the number 2 converter. These devices are used for bulk data transfer between another DAS3 (D/C) unit or an IBM computer system using the 2780/3780 IBM protocol.

(5) Voice/Data Switch/Buttons. On the A cabinet there is a voice/data device switch, on the B cabinet there are two sets of voice/data buttons. In the A cabinet when you set the switch in voice position, signals coming into the signal entrance panel are routed to the phone binding posts on the upper side of the cabinet which permits voice communication. In the data position, the line becomes a data channel and overrides the voice capability. On the B cabinet, the buttons accomplish the same task. The upper row of buttons are for telephone pair 25 and the lower row of buttons are for pair 26.

(6) Two-Wire/Four-Wire Switch. The two-wire/four-wire switch on the B cabinet selects either a two-wire or four-wire mode of data transmission.

(a) Four-Wire Mode. When the switch is in the four-wire position, the two dialup circuits (pairs 25 and 26) are disabled. Pairs 25 and 26 can now be used as a four-wire direct connect circuit to slot 13 in the modem rack. Pair 25 is the transmit line and pair 26 is the receive line. For a four-wire data transmission, the RM-201B circuit board must be installed in slot 13.

(b) Two-Wire Mode. When the switch is in the two-wire position, pair 25 is directly connected to slot 13, the synchronous port in the quasi-analog modem assembly. Pair 26 is directly connected to slot 16, the asynchronous port. Both pairs are connected to the modem assembly through data access arrangement (DAA) protective, interface devices. The two-wire configuration of the DAS3 (D/C) is used for autocall/manual dialing or answering capability.

(7) Autocall/Autoanswer. To reduce the necessity for your intervention in every data transfer operation, the DAS3 (D/C) has an autocall/autoanswer capability that operates through the quasi-analog modem assembly. Slots 13, 14, 15 and 16 contain the circuit boards which operate autocall/autoanswer. This capability enables the DAS3 (D/C) to operate unattended after normal duty hours. The autoanswer unit detects an incoming telephone call and automatically provides a connection to the caller so that the data transmission between a remote terminal user and the CPU can proceed without operator intervention. Conversely, the autocall permits the CPU to dial the number of another DAS3 (D/C) or a computer that has the same protocol. Both the telephone numbers and time of call are programmed into the CPU as well as the number and sequence of redials if one or more busy signals are encountered.

(8) Interactive Remote Terminals. The DAS3 (D/C) can interface with a remote keyboard display terminal through telephone circuits. It need not be direct wired to the van, but the terminal must have a modem compatible to the modem in slot 16 of the quasi-analog modem assembly. In addition, the operator must know the login procedures and any other site-specific details concerning the data transfer.

c. Data Security. As a DAS3 (D/C) operator you are responsible for preventing the theft or misuse of data as well as deliberate or accidental damage or access to the system by unauthorized personnel. Local SOPs and applicable regulations will determine the security precautions you will be expected to take in order to protect the integrity of the ADP system.

d. Cryptography. You may be called upon to process data which must be protected from unauthorized access by use of cryptographic equipment. The DAS3 (D/C) is set up for cryptography through a scrambling device (KY 68) that interfaces with the 103J modem. In the event you are required to work with crypto equipment, your supervisor will give you the instructions you need. Equipment used in conjunction with crypto devices includes the isolator assembly, the telecommunication line controller (TLC), and a crypto auxiliary unit (CAU) if required.

(1) Isolator Assembly. The isolator assembly is used to transmit a voice or digital signal from one cavity to another while effectively eliminating the RFI content of the signals. It is used for TEMPEST secure communication.

(2) Telecommunication Line Controller (TLC). The TLC is located in the crypto cabinet. It is designed to interface the CPU equipment with AUTODIN. It is connected to the data terminal equipment by plug and cable. All data between the data terminal equipment (DTE) and AUTODIN will pass through the TLC. The TLC performs the following functions during message transmission to the AUTODIN switching centers:

- Governs the flow of raw data from the data terminal equipment
- Converts raw data to ASCII code
- Buffers and properly frames each transmission block to the switching center
- Automatically retransmits any block received in error at the switching center
- Informs the data terminal equipment of message acceptance or rejection by the switching center

For messages received from AUTODIN, the TLC performs the following:

- Validates each block received according to Mode I protocol
- Automatically requests retransmission of blocks received in error
- Monitors data terminal equipment for ability to receive data
- Strips block framing and control information prior to delivery to data terminal equipment
- Delivers data, purified and compatible to the data terminal equipment

(3) Crypto Auxiliary Unit (CAU). The CAU provides an interface between crypto equipment and modems or converters to allow transmission and reception of crypto-coded digital data. Some cryptographic equipments require this device, but none are currently provided.

(4) AUTODIN. The DAS3 (D/C) is set up for data transmission via AUTODIN. The Automatic Digital Network (AUTODIN) is a subsystem of the Defense Communication System (DCS). AUTODIN functions as a single, integrated, worldwide, high-speed, computer-controlled, general-purpose communications network, providing record communications service to the Department of Defense (DOD) and other federal government agencies. It consists of all AUTODIN switching centers (ASC) and all terminal stations connected to them. This secure, fully automatic message switching network is designed, engineered and programmed to provide continuous operation, minimal loss of service and no loss of traffic.

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OPERATING INSTRUCTIONS

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Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

2-1. CONTROLS AND INDICATORS

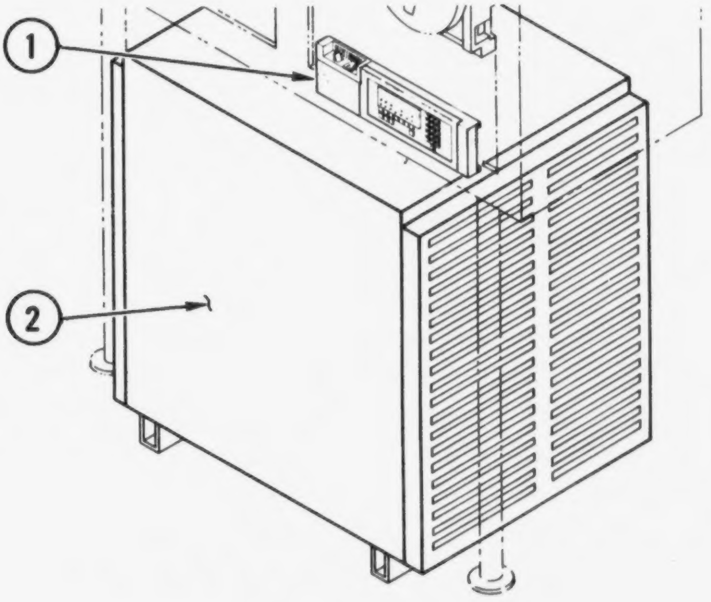
This section describes and explains the use, and order of use, of controls and indicators in the ADP and Communications subsystems.

Controls and indicators used in the operation of the support equipment have been described in Technical Principles of Operation. Their use is covered in section III of this chapter.

2-2. ADP SUBSYSTEM

Peripherals operate under the control of the software in a system environment. All actions by a peripheral such as printing out forms or reading punch cards is initiated either through input/output commands or by operator entered data. If a requested device, such as the tape drive, becomes unavailable to the system (it may be powered OFF, busy, or malfunctioning.) the software sends an error code. This code may appear on the console screen or the control panel register.

a. CPU Controls and Indicators. The CPU consists of two components: control panel and cabinet (fig. 2-1). One is linked to the other by cable.



① CPU CONTROL PANEL	Mounted on front of tape drive unit. Used to control, indicate, and modify the operational status of the CPU.
② CPU CABINET	Rack-mounted solid-state boards, a power distribution unit (PDU), and a memory save unit.

Figure 2-1. CPU Cabinet and Control Panel

(1) CPU Control Panel Controls and Indicators. Operator controls are mounted on front of tape drive unit (fig. 2-2).

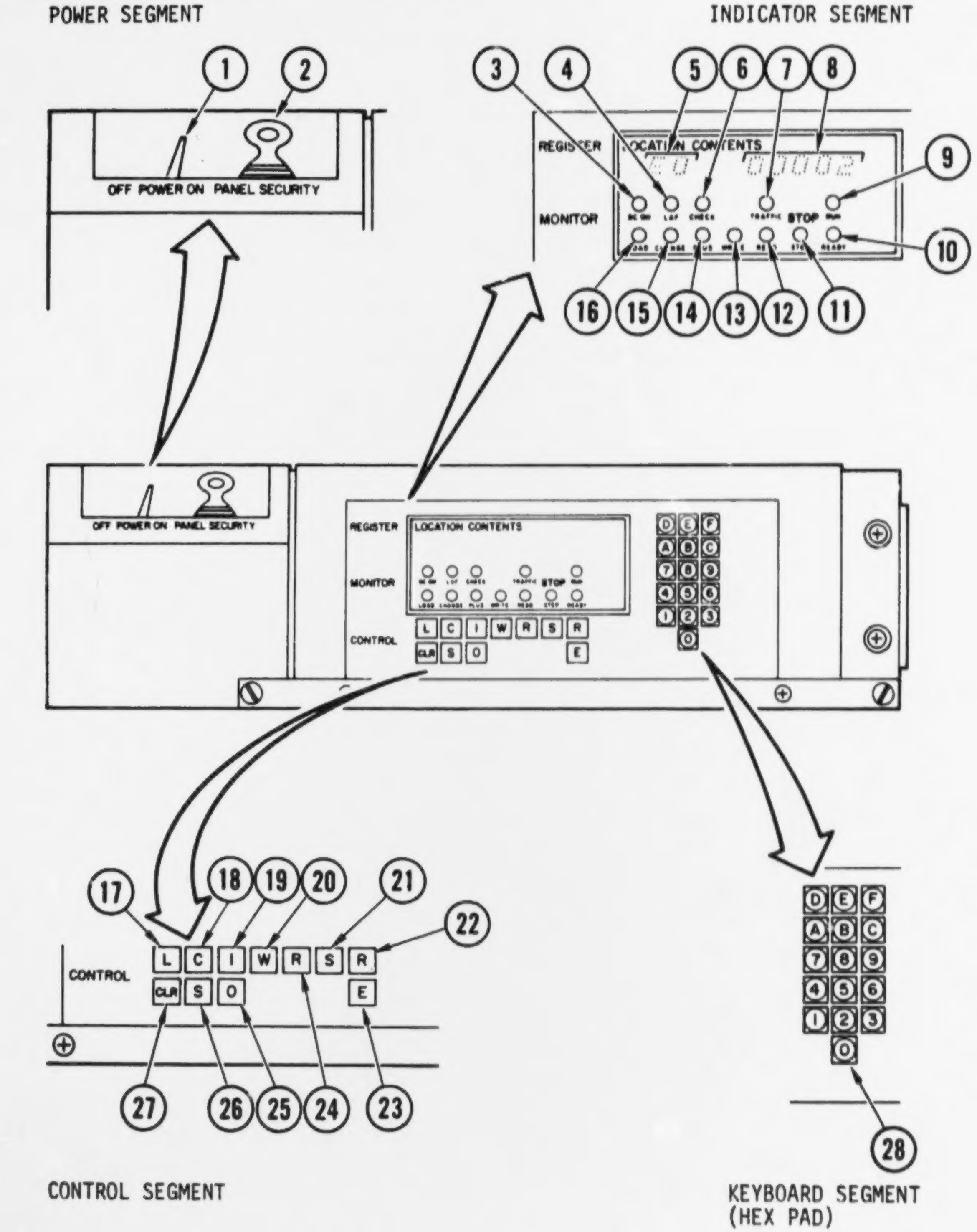
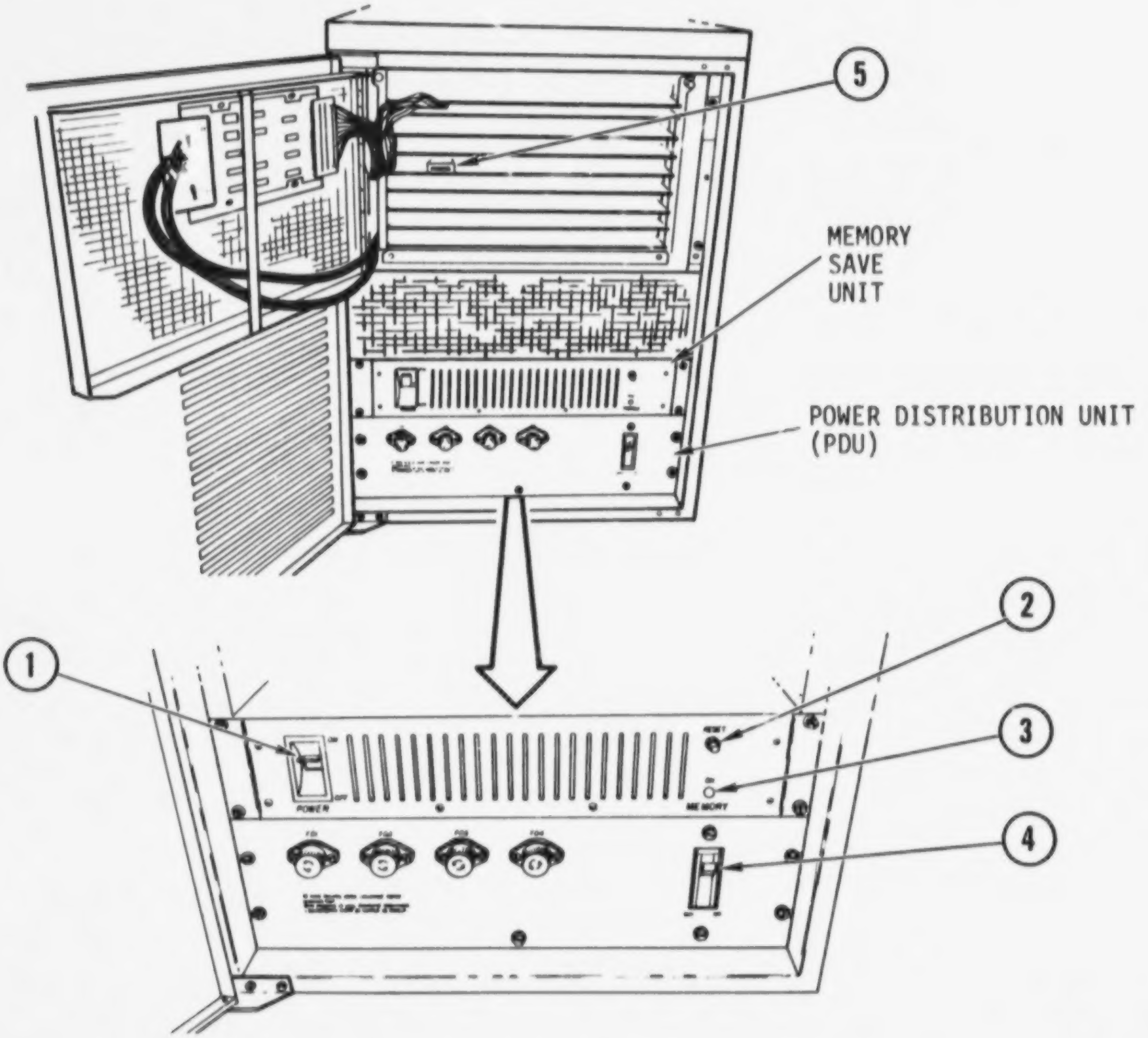

POWER SEGMENT
INDICATOR SEGMENT
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
OFF POWER ON PANEL SECURITY
REGISTER
LOCATION CONTENTS
MONITOR
STOP
TRAFFIC
READY
CONTROL
L
C
I
W
R
S
R
CLR
S
O
E
D E F
A B C
7 8 9
4 5 6
1 2 3
0
17
18
19
20
21
22
23
24
25
26
27
28
CONTROL SEGMENT
KEYBOARD SEGMENT
(HEX PAD)

Figure 2-2. Control Panel Controls and Indicators (1 of 2)

① POWER ON/OFF switch	In ON position, applies power to CPU.
② PANEL SECURITY key-operated switch	In ON position (cw), allows CPU control panel to function. In OFF position (ccw), locks out control panel.
③ DC ON indicator	Indicates power at CPU control panel.
④ LAF indicator	Indicates that CPU is operating in LAF mode When not lit, CPU is operating in SAF mode.
⑤ Register LOCATION indicators	Two letters or numbers display coded location of a selected register (or location) in CPU.
⑥ CHECK indicator	Indicates CPU or has not completed self-check (QLT) procedures.
⑦ TRAFFIC indicator	Indicates CPU is performing an operation.
⑧ Register CONTENTS indicators	Five numbers display contents of register by location.
⑨ RUN indicator	Indicates CPU is processing, or running.
⑩ READY indicator	Indicates CPU is in ready mode.
⑪ STOP/STEP indicator	Indicates CPU is in single instruction mode.
⑫ READ indicator	Indicates CPU is in memory read mode.
⑬ WRITE indicator	Indicates CPU is in memory write mode.
⑭ PLUS indicator	Indicates CPU is in increment memory address mode.
⑮ CHANGE indicator	Indicates CPU is in change mode.
⑯ LOAD indicator	Indicates CPU is in bootload mode.
⑰ L (Load) pushbutton	Places CPU in load mode.
⑱ C (Change) pushbutton	Places CPU in change mode.
⑲ 1 (Plus one) pushbutton	Places CPU in plus one mode (increments to next register each time Execute is pressed).
⑳ W (Memory Write) pushbutton	Places CPU in memory write mode.
㉑ S (Stop) pushbutton	Stops processing activity in CPU.
㉒ R (Ready) pushbutton	Places CPU in ready mode.
㉓ E (Execute) pushbutton	Starts processing activity.
㉔ R (Memory Read) pushbutton	Places CPU in memory read mode.
㉕ 0 (Plus Zero) pushbutton	Clears plus one mode.
㉖ S (Select) pushbutton	Places CPU in select mode.
㉗ CLR (Master Clear) pushbutton	Clears CPU.
㉘ Keyboard Segment (Hex pad) Keys 0 thru F	Used to key in hexadecimal digits to select registers, memory locations and examine or change their contents.

Figure 2-2. Control Panel Controls and Indicators (2 of 2)

(2) CPU Cabinet Controls and Indicators. Operator controls in the CPU cabinet (fig. 2-3) are located on the memory save and on the power distribution units. Both units are inside the cabinet door.



① POWER ON/OFF - Turns power to memory save on and off.

② RESET - Restarts memory save.

③ MEMORY ON - Lights to indicate memory save is on.

④ Circuit breaker - Turns power distribution unit on and off.

⑤ Real Time Clock battery save switch.

Figure 2-3. CPU Cabinet Controls and Indicators

b. Disk Drive Controls and Indicators. Located on the disk drive cabinet (fig. 2-4) and the disk drive (fig. 2-5).

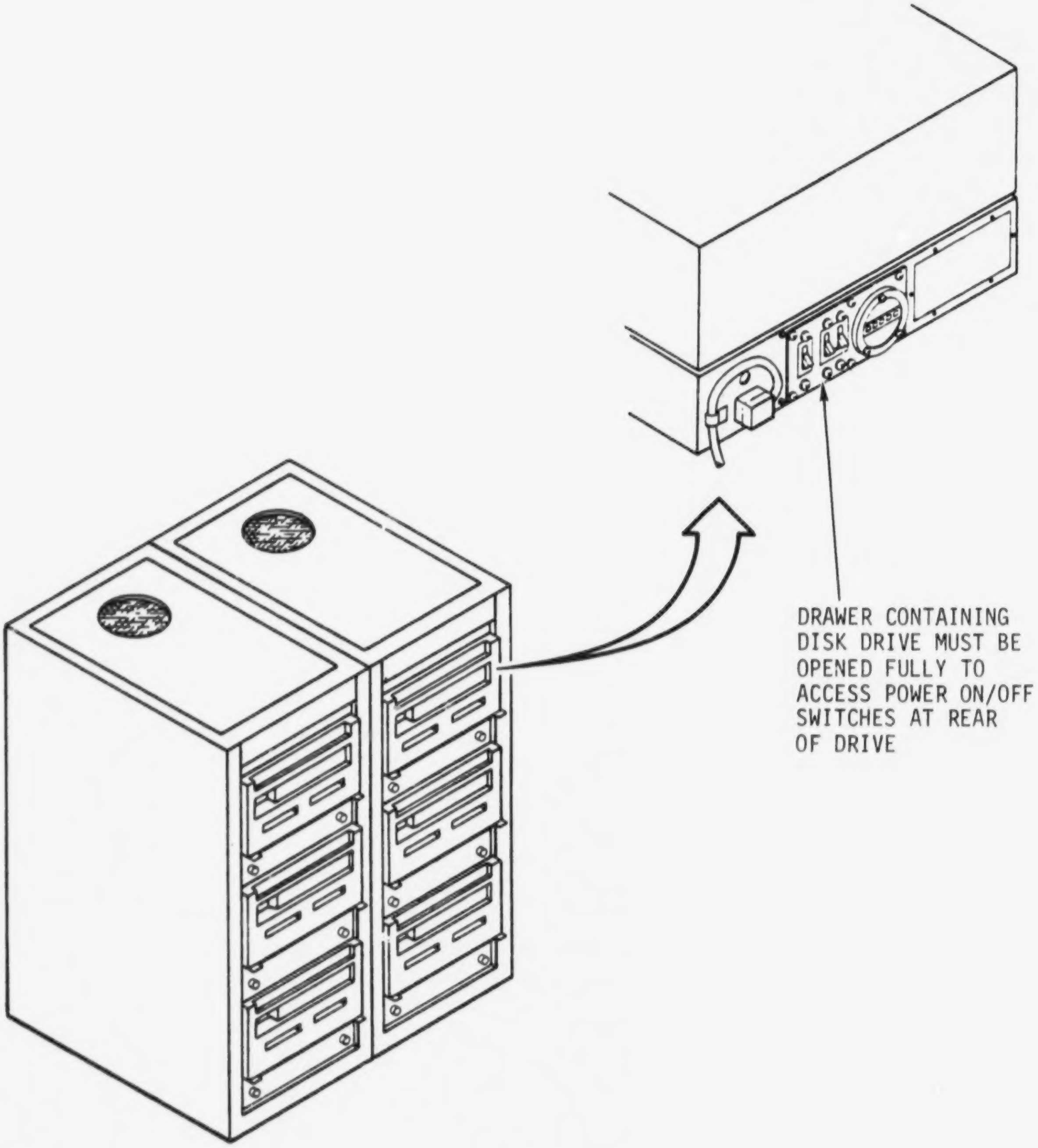
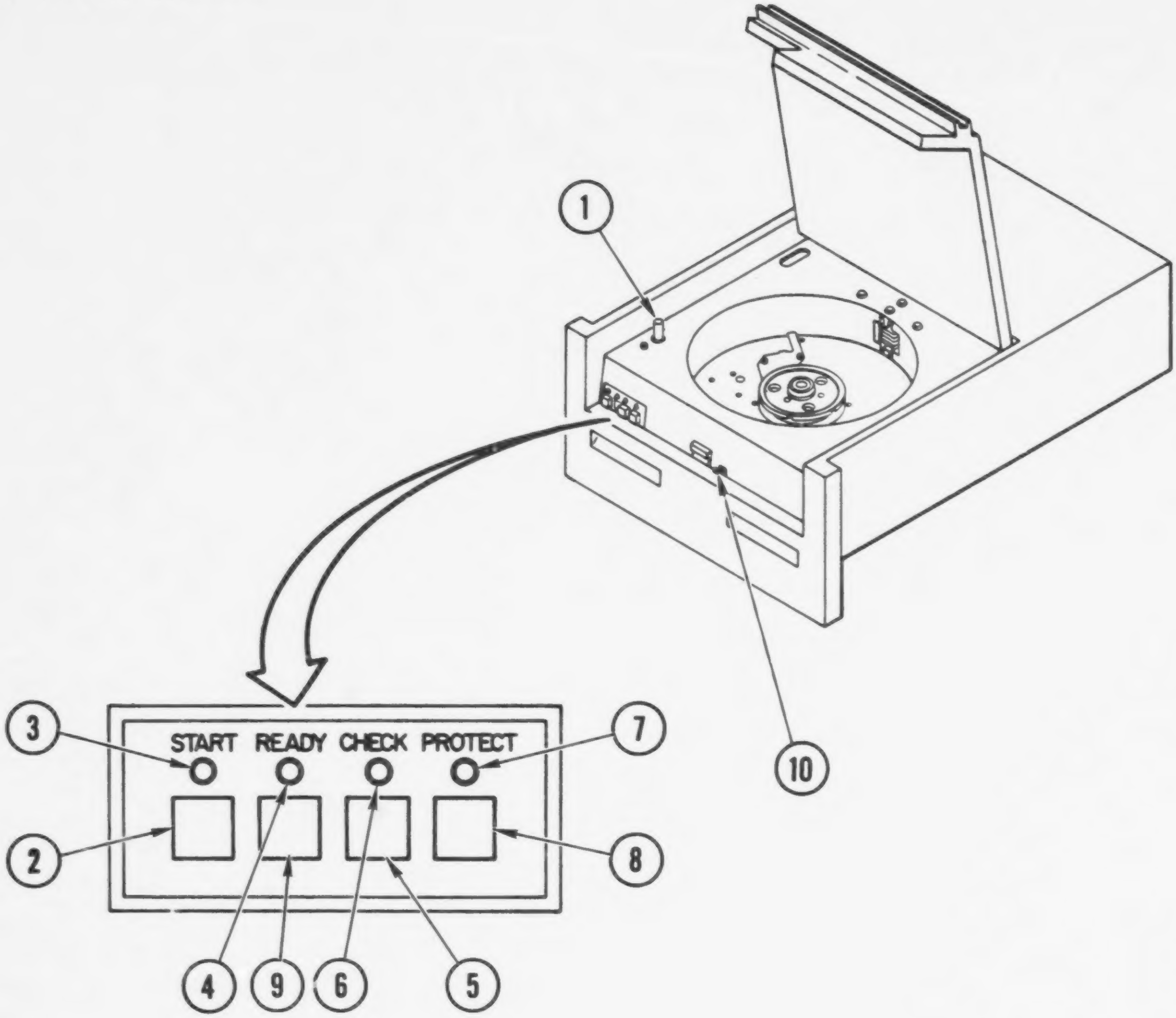

DRAWER CONTAINING DISK DRIVE MUST BE OPENED FULLY TO ACCESS POWER ON/OFF SWITCHES AT REAR OF DRIVE

Figure 2-4. Disk Drive Power Controls



① Interlock Switch - Enables power to spin mechanism when cover is closed.

② START Pushbutton - Starts unit when pressed, if disk drive is powered ON.

③ START Indicator - Lights when spindle is started.

④ READY Indicator - Lights when the spindle is rotating at proper speed. Heads are loaded, no fault condition exists, and unit is ready to accept commands.

⑤ CHECK Pushbutton - Resets indicator and power when pressed.

⑥ CHECK Indicator - Lights when possible fault is detected.

⑦ PROTECT Indicator - Lights when unit is in protect mode.

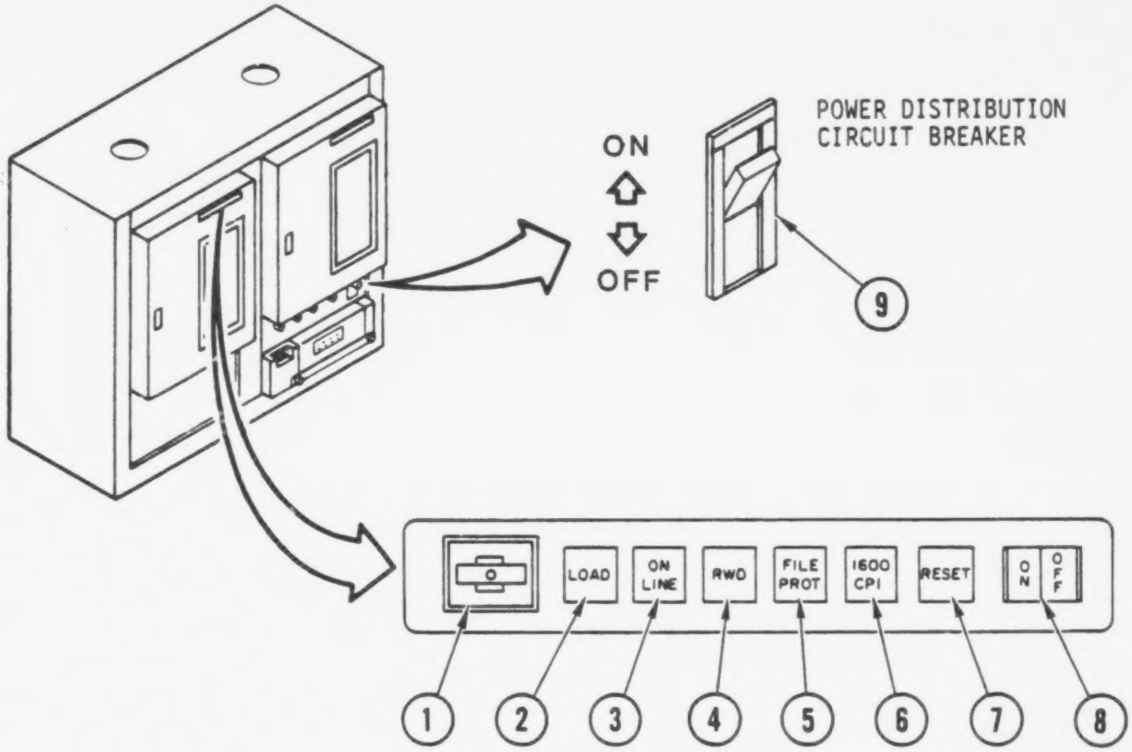
⑧ PROTECT pushbutton - Puts unit in PROTECT mode when pressed. Disables WRITE circuits so that data cannot be entered or released from disk pack.

⑨ Logical Address plug - Determines logical address of disk drive. Address can be set from "0" to "15".

⑩ PACK COVER SWITCH - Locks pack cover latch for up to one minute after drive is cycled down. This prevents contact with spinning disk pack.

Figure 2-5. Disk Drive Operating Controls and Indicators

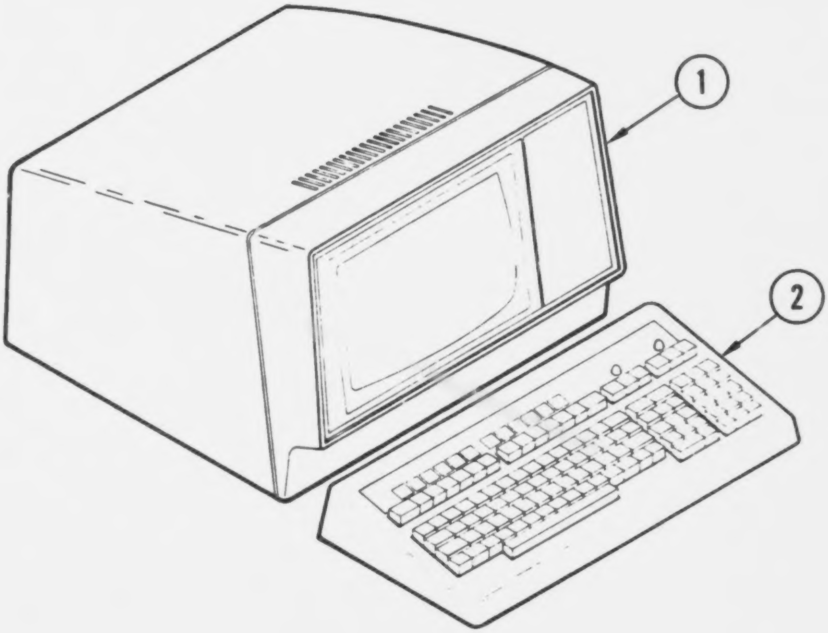
c. Tape Drive Controls and Indicators. The tape drive control panel and the power distribution unit contain controls and indicators (fig. 2-6).



①	Unit select switch	Changes tape drive address (0, 1, 2, 3).
②	LOAD switch/indicator	Cycles up the tape drive. Lights to indicate tape is tensioned and at BOT.
③	ON LINE switch/indicator	Sets tape drive on line. Lights to indicate tape drive is under remote control (on line).
④	RWD switch/indicator	Causes the magnetic tape to rewind. Lights to indicate tape is rewinding.
⑤	FILE PROT indicator	Indicates when write-permit ring is installed (light not lit) and when it is not (light is lit).
⑥	1600 CPI switch/indicator	Adjusts tape drive for PE tapes with 1600 characters per inch (light is lit) and NRZI tapes with 800 characters per inch (light not lit).
⑦	RESET switch/indicator	Stops tape. Lights to indicate tape drive is off line.
⑧	ON/OFF switch/indicator	Turns tape drive power on and off. Lights to indicate power is on.
⑨	PDU circuit breaker	Controls power to tape drives.

Figure 2-6. Tape Drive Controls and Indicators

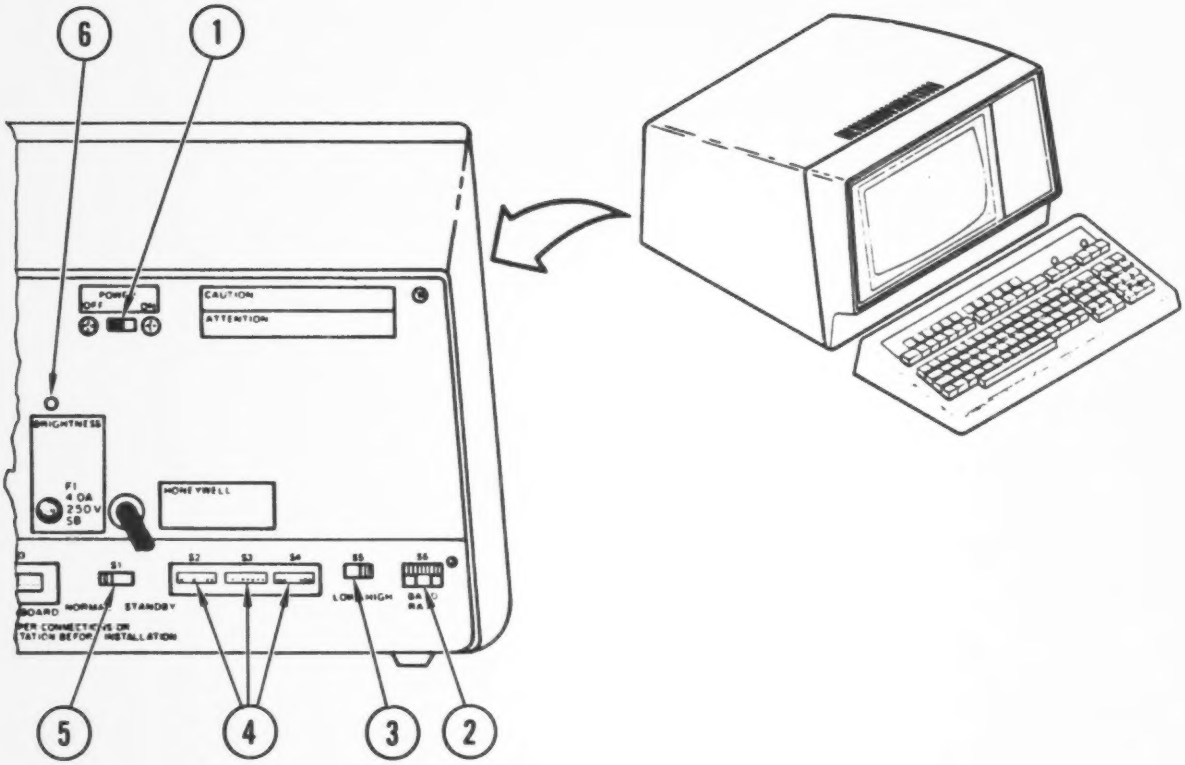
d. Keyboard-Display Terminal Controls and Indicators. The keyboard-display terminal (fig. 2-7) consists of a display unit and a keyboard. The keyboard is connected to the display unit by a ribbon cable. This terminal is asynchronous i.e., it transmits each character or block of characters at varied intervals to the computer. In character (CHAR) mode, each character is transmitted as it is typed. In TEXT mode, the terminal transmits from the first character entered (since the last transmission) to the current cursor position minus one, or from a position set by host command. The characters you type in TEXT mode are stored in a buffer memory until a command is issued to transmit. Reception of data is always on a character-by-character basis as sent by the host system. Because of its flexibility, this terminal is utilized in DAS3 (D/C) as a console terminal, as an I/O terminal, and as a remote terminal which communicates to DAS3 (D/C) over direct connect wires or telephone lines. The terminal has operator controls on the back of the display unit (fig. 2-8) to power ON/OFF and to configure the unit for various operations.



① Display Unit - 12-inch nonglare screen is composed of a cathode-ray tube (CRT) and supporting electronic components housed in a stand-alone case.

② Keyboard - color coded, solid state keys are arranged in stepped rise on base

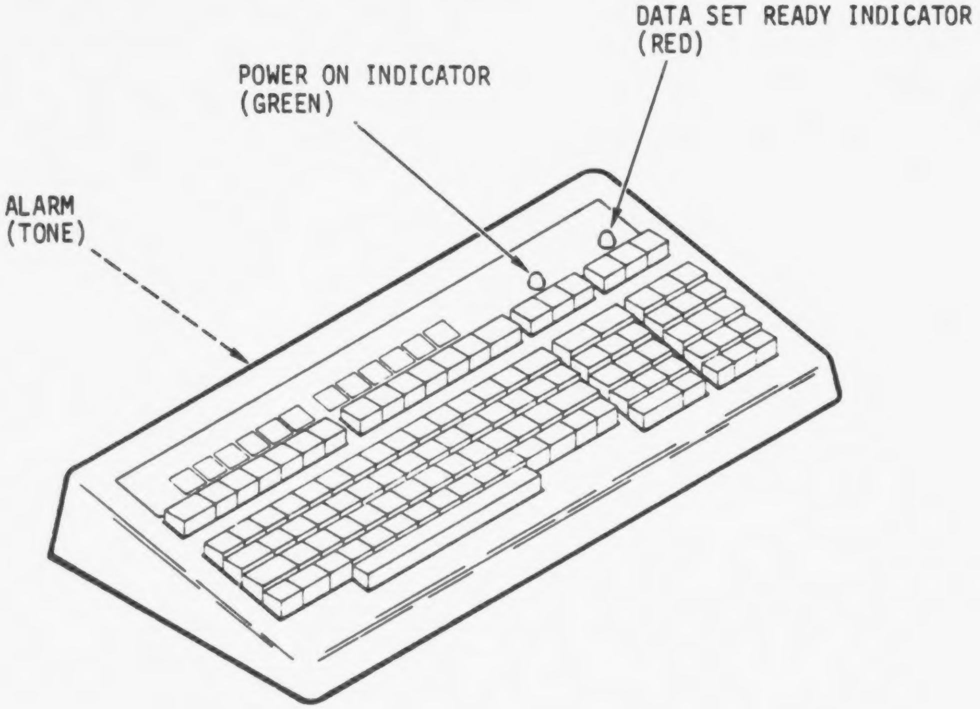
Figure 2-7. Keyboard-Display Terminal


6
1
POWER
OFF
ON
CAUTION
ATTENTION
BRIGHTNESS
F1
4.0A
250V
SB
HONEYWELL
S1
S2
S3
S4
S5
S6
NORMAL
STANDBY
LOW HIGH
BAUD RATE
5
4
3
2

① POWER	Rocker switch powers the unit ON/OFF.
② BAUD RATE	Thumbwheel switch which sets the appropriate communication line speed. Normally set at installation by maintenance personnel.
③ LOW/HIGH	Slide switch used in certain European applications. Left in HIGH position for all US applications.
④ Address Switches	Miniature switch modules used to address terminal to the operational state required by the CPU. Switches are normally set at installation by maintenance personnel.
⑤ NORMAL/STANDBY	Slide switch for time-share operation. Set to NORMAL position for all regular operation.
⑥ BRIGHTNESS	Controls the intensity of the image display on the screen. Clockwise rotation increases brightness.

Figure 2-8. Display Unit Controls

(1) Keyboard indicators (fig. 2-9) - include POWER, DATA SET READY and a tone alarm. Use of the keyboard for data entry and transmission is covered in TM 11-7025-211-10.



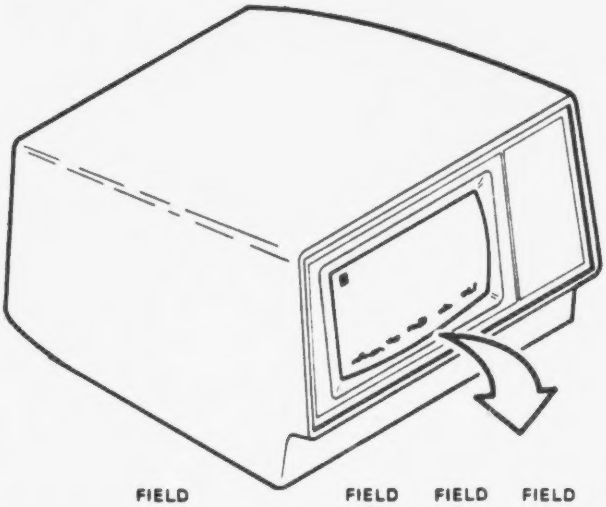
POWER ON INDICATOR - is green and lights when terminal is powered on at back of display unit.

DATA SET READY INDICATOR - is red and lights when terminal is powered on and Data Set Ready signal is on. This indicator does not light if the terminal is using a current loop transmitter instead of the communication cable transmitter.

ALARM - an audible tone produced by a tiny speaker mounted inside the keyboard.

Figure 2-9. Keyboard-Display Terminal Keyboard Indicators

(2) The STATUS LINE (fig. 2-10) is always the 25th line on the screen and is normally displayed at low intensity. Its operation is separate from the other 24 lines on the screen. Its main purpose is to inform you of status conditions produced automatically by the terminal. These conditions are displayed in English words in FIELD 1 of the STATUS LINE. When no message is displayed during operation, this means the terminal is busy. The remaining fields of the STATUS LINE indicate modes of operation selected by the operator. The last two fields indicate the line and column position of the cursor.



FIELD 1	FIELD 2	FIELD 3	FIELD 4	FIELD 5	FIELD 6	FIELD 7	FIELD 8	FIELD 9	FIELD 10	FIELD 11
20 CHARACTERS	7 CHARS.	6 CHARS.	7 CHARS.	7 CHARS.	5 CHARS.	8 CHARS.	6 CHARS.	7 CHARS.	4 CHARS.	3 CHARS.
	(BLANK) OR INSERT	(BLANK) OR GRAPH	TEXT FORM CHAR	(BLANK) OR ECHO OR TX-RET	(BLANK) OR ROLL	(BLANK) OR AUTO-LF	(BLANK) OR LOCAL	(BLANK)	(LINE) —000 TO —024	(COL.) —000 TO —081

STATUS MESSAGES:

ALPHA/DIGIT FIELD
ALPHA FIELD
ALPHA/NUMERIC FIELD
ATTRIBUTE OVERFLOW
BUFFER OVERFLOW
COMMUNICATIONS ERROR
DATA OVERFLOW
DIGIT FIELD
ENTRY REQUIRED
FILL REQUIRED
INVALID COMMAND
KEYBOARD LOCKED
NUMERIC FIELD
READY
SELF TEST XXXXXXXX

(NO MESSAGE) ← TERMINAL BUSY

Figure 2-10. Status Line Displays

f. Console Printer Controls and Indicators. The console printer contains a number of switches, controls, and indicators which allow a variety of uses. Operator controls include the ac power switch (fig. 2-11), the run/load lever, the paper roll lever, the forms thickness adjustment knob, and a control panel.

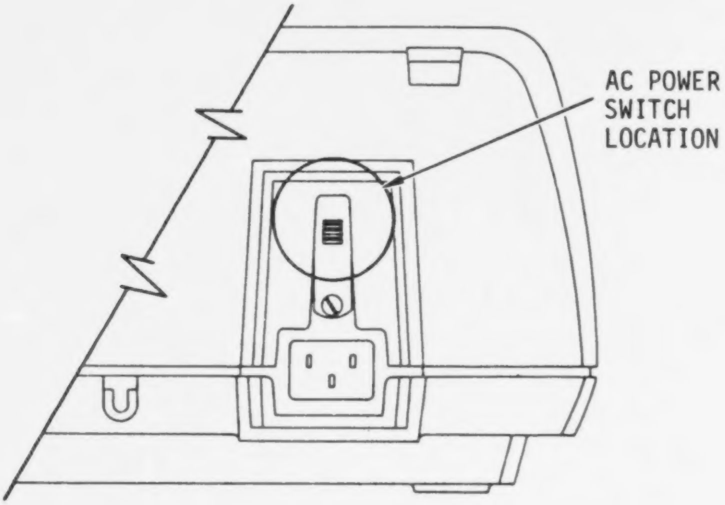


Figure 2-11. Ac Power Switch

(1) The run/load lever (fig. 2-12) is under the right side of the access cover. In load position, this lever moves the print head away from the platen to provide clearance for installing a ribbon or loading paper.

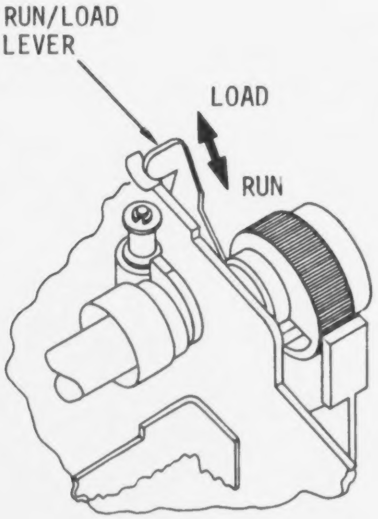


Figure 2-12. Run/Load Lever

(2) The paper roll lever (fig. 2-13) - is used only when single sheets or paper rolls are used for printout. This option is not used in DAS3 (D/C) so you do not use this control for normal operation. The lever should remain in center (pin feed) position.

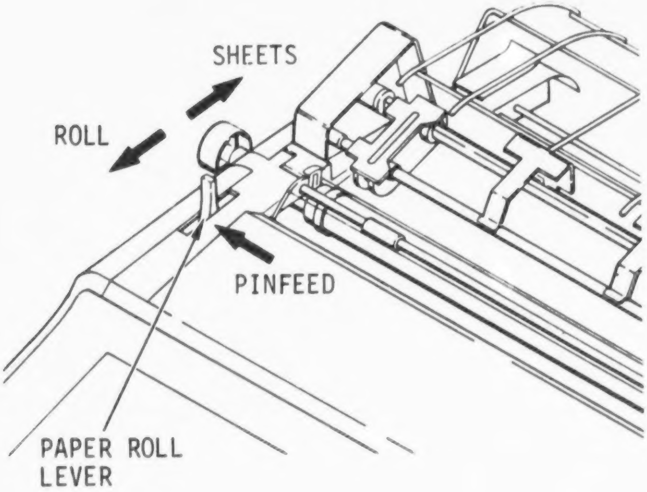

SHEETS
ROLL
PINFEED
PAPER ROLL LEVER

Figure 2-13. Paper Roll Lever

(3) The forms thickness knob (fig. 2-14) - is located under the right side of the access cover. Use this knob to set the correct distance between the print head and platen for various thicknesses of forms.

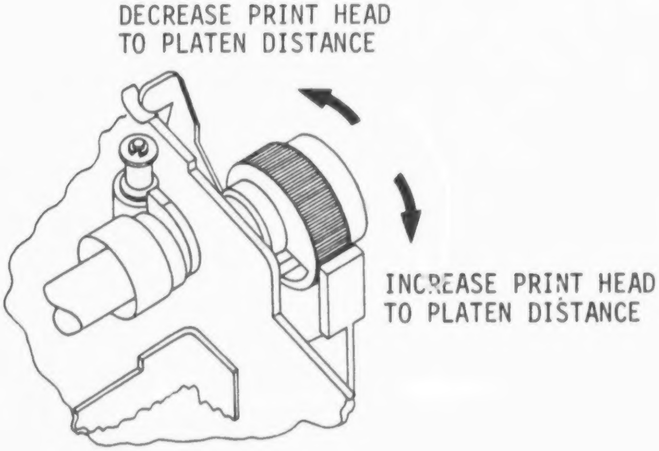

DECREASE PRINT HEAD TO PLATEN DISTANCE
INCREASE PRINT HEAD TO PLATEN DISTANCE

Figure 2-14. Forms Thickness Knob

(4) The console printer has two operational indicators (fig. 2-15) - a print position indicator (PPI) and a ready indicator. It will also sound an audible tone during alarm conditions. In addition the console printer has a control panel (fig 2-16) with 16 keys.

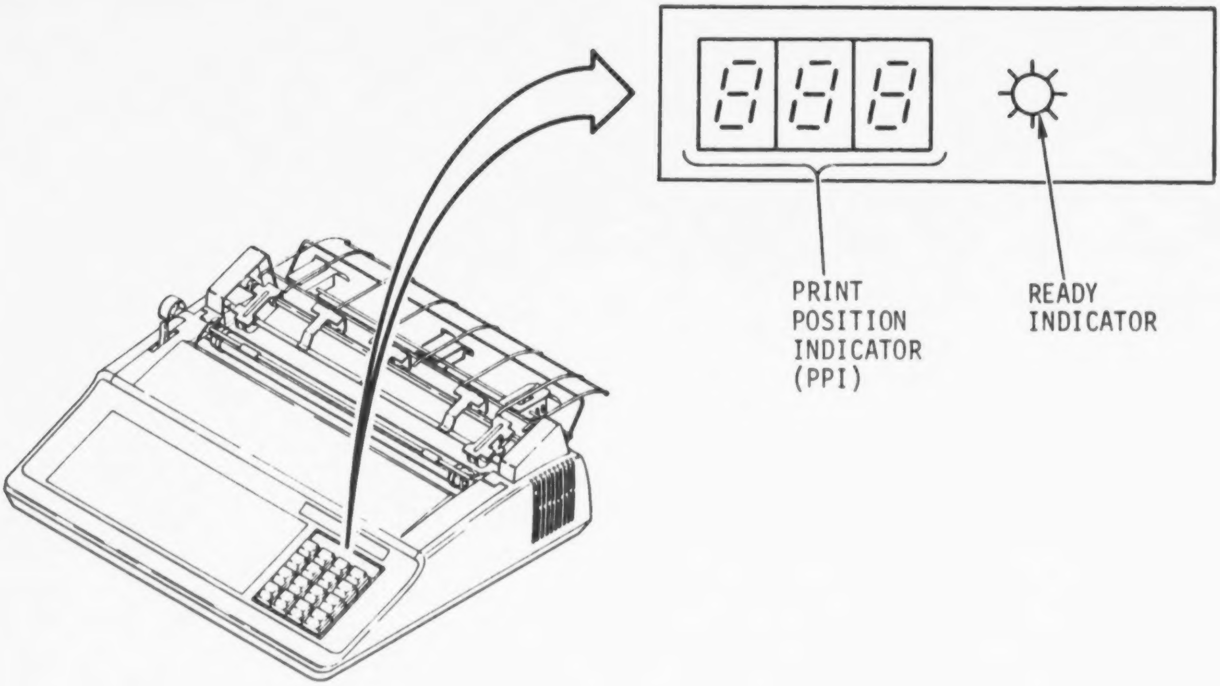


Figure 2-15. Status and Ready Indicators

(a) Ready Indicator. The ready indicator (Table 2-1) is an LED located to the right of the PPI and under the same window. It reports the status of the data set ready (CC) and clear to send (CB) data set lines. When the console printer is used in a non-data set application, such as a slave to the console terminal, the ready indicator is controlled only by the CB.

Table 2-1. Ready Indicator Reports

LED CONDITION	ON	OFF	FLASHING
LINE STATUS	CC and CB active	CC inactive CB active/inactive	CC active CB inactive

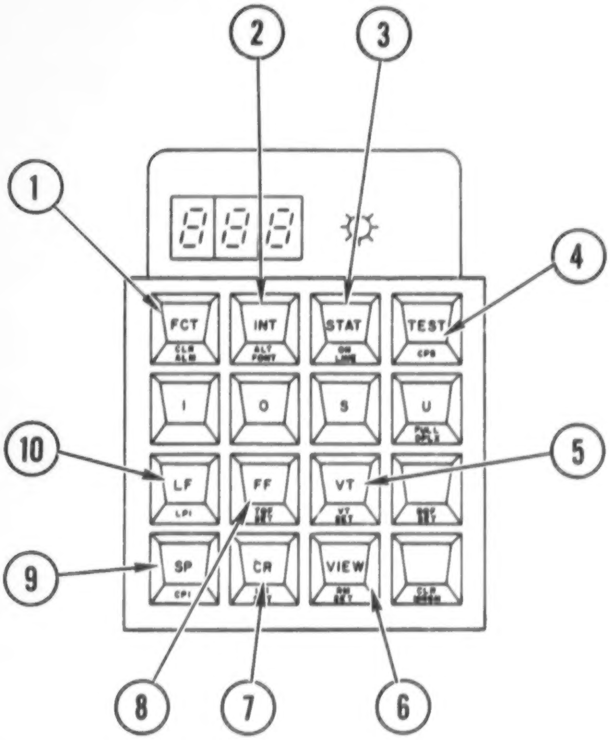
(b) Print Position Indicator. The PPI is composed of three LED displays used to convey printing positions i.e., the column number of the next character to be printed. However, the PPI may begin to blink and display other codes. This indicates a change in status.

(c) The control panel consists of a cluster of sixteen control keys and is located on right side of printer (fig. 2-16). Some of the keys cause specific printer action, while others are used in conjunction with the FCT (function) key to change configuration parameters (table 2-2).

Table 2-2. Configuration Parameters

KEY PRESSED WITH FCT KEY HELD DOWN	RESULTING CONFIGURATION
CLR ALM	Clears alarm indicating an error, interrupt or paper outage
ALT FONT	This option is not used
ON LINE	Changes status of printer from ON LINE to LOC operation or from LOC to ON LINE
CPS*	Used to set characters per second
OSU**	Pressing keys in sequence given indicates strapping option mode is on
FULL DPLX	Sets FULL DUPLEX transmission mode
LPI*	Used to set Lines Per Inch which is the veritical character pitch
TOF SET	Sets TOP OF FORM in print position
VT SET	Sets vertical tabs in print position
BOF SET	Sets bottom of form in print position
CPI*	Sets characters per inch
LM SET	Sets left margin
RM SET	Sets right margin
CLR MRGN	Clears margin

* Pressing key repeatedly causes sequencing to next setting.
** Press keys in the sequence given.



① FCT (Function)/CLR ALM (Clear Alarm) - Causes, when pressed with a second key, a change in the "set-up" parameters, storing them in non-volatile memory.

② INT (Interrupt) - Causes a 250 msec. spacing or BREAK signal to be transmitted.

③ STAT (Status) - Causes the status of all set-up parameters to be printed.

④ TEST - Causes printing of the complete print character set as long as depressed. The printer also self-tests. Enabled only in LOCAL.

⑤ VT (Vertical Tab) - Causes the paper to advance to a programmed vertical position or, if no VT is programmed, to advance a line. Enabled in LOCAL.

⑥ VIEW - Causes printhead to offset to the right to allow viewing last character printed. Printhead automatically returns to the proper position with the next printable character.

⑦ CR (Carriage Return) - Causes printhead to return to the left margin. Enabled only in LOCAL.

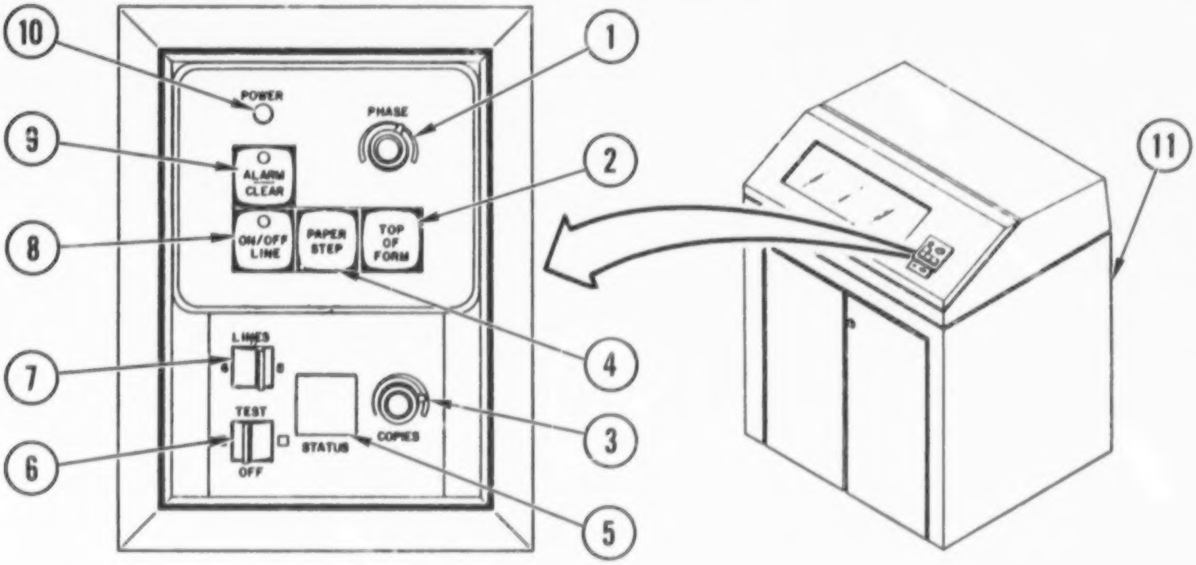
⑧ FF (Form Feed) - Causes paper to advance one form length or 11 inches if no length has been programmed. A mode is available to disable FF when On Line.

⑨ SP (Space) - Causes the printhead to advance one position. Enabled only in LOCAL. The key has an auto repeat capability when held down.

⑩ LF (Line Feed) - Causes paper to advance a line. A configuration mode can disable LF key when On Line. Key has an automatic capability if held down.

Figure 2-16. Console Printer Control Panel

g. Line Printer Controls and Indicators. The line printer (fig. 2-17) is used to document transactions. As you feed data into the system, the CPU processes that data. The printer generates a hard copy of this data.



① PHASE - this control is used to maintain equal density of printing on the right side and on the left side of the characters.

② TOP OF FORM - if this switch is pressed when the printer is off line, the paper advances to the top-of-form position of the next form. Nothing happens when this switch is pressed if the printer is on line or when loading the optional VFU.

③ COPIES - adjusted to allow printing on single part or multi-part forms.

④ PAPER STEP - when this switch is pressed, the paper advances one line if the printer is off line. Nothing happens when the switch is pressed if the printer is on line or when loading the optional VFU.

⑤ STATUS - alphanumeric display indicating printer function being performed or the nature of the fault which caused printer failure.

⑥ TEST - a three-position switch used in the self-test of the line printer.

⑦ LINES - selects six or eight lines per vertical inch.

⑧ ON/OFF LINE - a switch/indicator lights when the printer is on line. Each time the switch is pressed, the printer status changes, either from on line to off line, or from off line to on line.

⑨ ALARM/CLEAR - a switch/indicator lights during power up or when a fault occurs. The display on the STATUS indicator indicates the specific fault. Press the ALARM/CLEAR switch/indicator to clear the printer circuitry.

⑩ POWER Indicator - lights when power is on.

⑪ POWER ON/OFF SWITCH - located on the rear of the cabinet.

Figure 2-17. Line Printer Controls and Indicators

h. Card Reader/Punch Controls and Indicators. The card reader/punch model 8010-80 (fig. 2-18) operates both on line and off line. When operating on line, the card reader/punch operation is an automatic computer controlled process. When on line in receive mode, data coming from the CPU is used to punch each card. In transmit mode, data from prepunched cards can be input to the CPU. When operating off line, the card reader/punch under the control of the operator can be used to punch, verify, reproduce or interpret cards. (TM 11-7040-200-10).

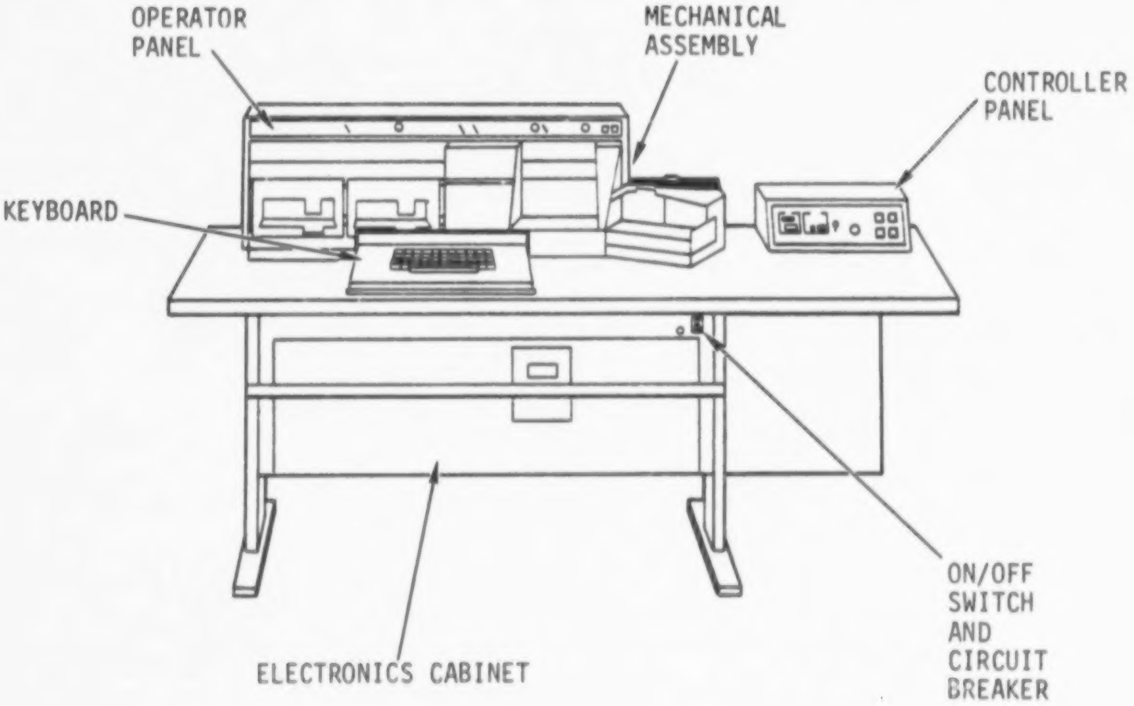

OPERATOR PANEL
MECHANICAL ASSEMBLY
CONTROLLER PANEL
KEYBOARD
ON/OFF SWITCH AND CIRCUIT BREAKER
ELECTRONICS CABINET

Figure 2-18. Card Reader/Punch Model 8010-80

(1) Power Controls. Power controls for the card reader/punch (fig. 2-19) are located on the front of the electronics cabinet. The circuit breaker operates the power supply unit inside the cabinet and the ON/OFF switch controls power to the card reader/punch.

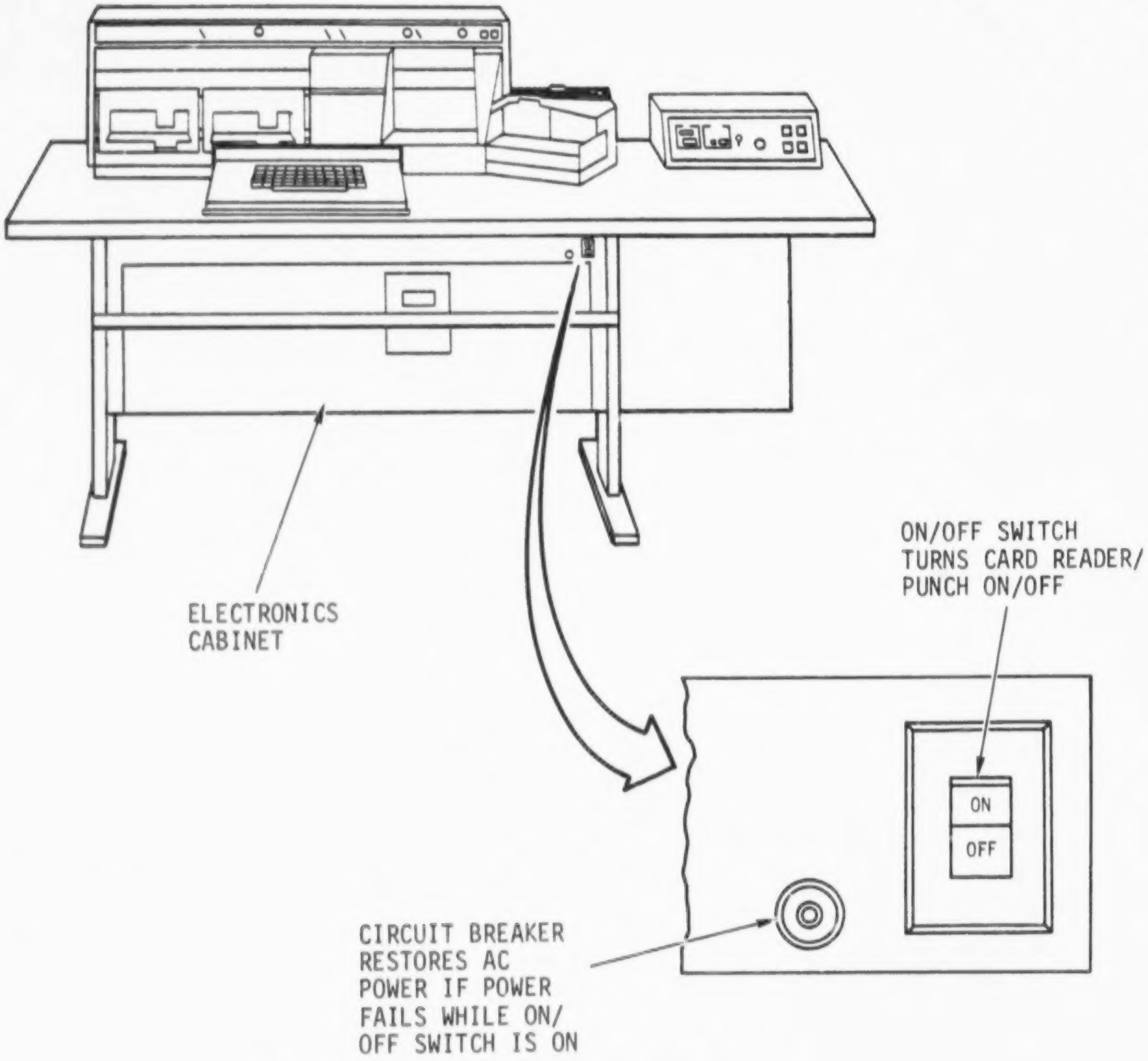

ON/OFF SWITCH TURNS CARD READER/ PUNCH ON/OFF
ELECTRONICS CABINET
ON
OFF
CIRCUIT BREAKER RESTORES AC POWER IF POWER FAILS WHILE ON/ OFF SWITCH IS ON

Figure 2-19. Card Reader/Punch Power Controls

(2) Operator Panel. Located on the top of the mechanical assembly (fig. 2-20). The panel contains operating switches and indicators. See TM 11-7040-200-10 for operating instructions.

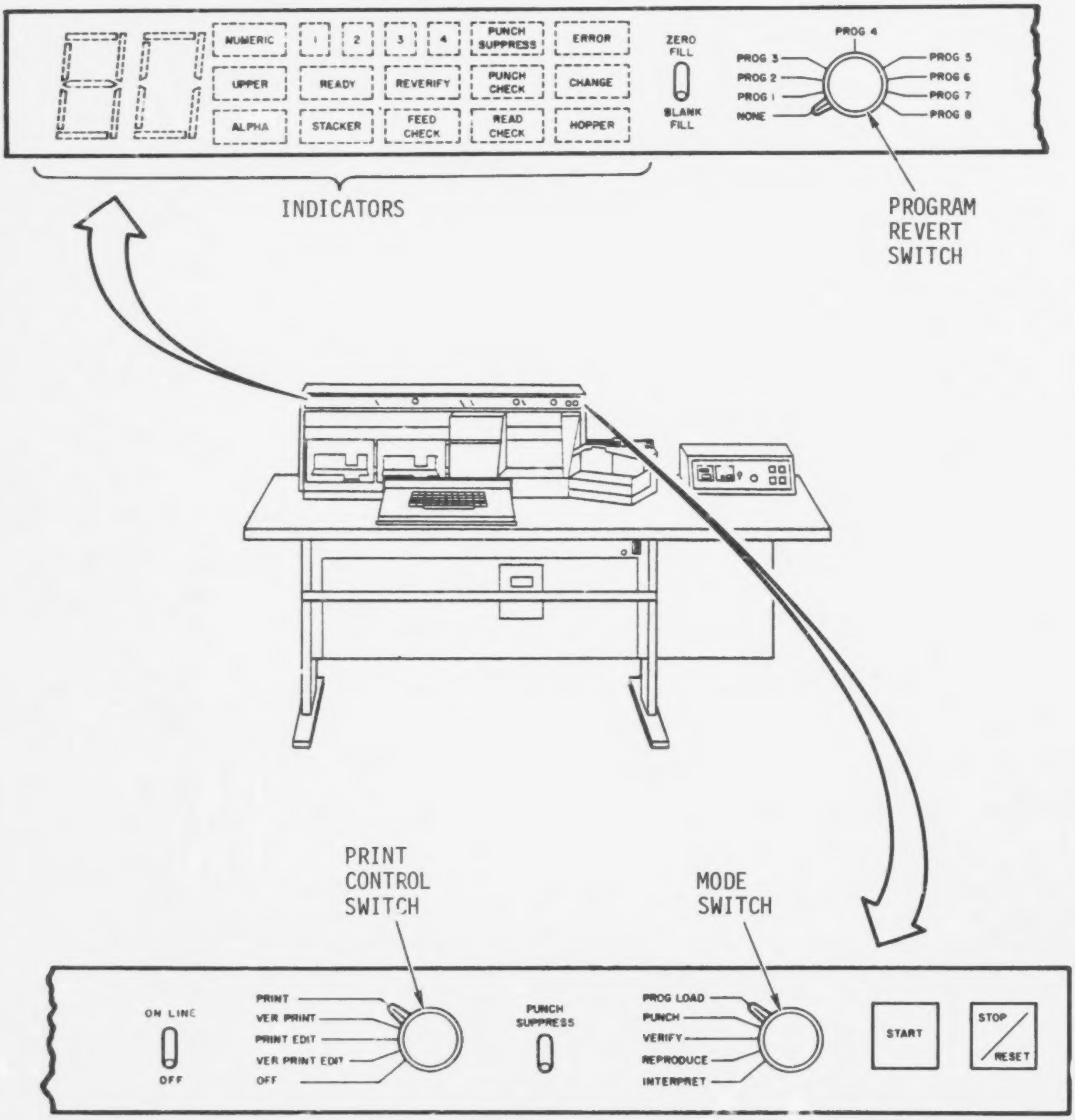

NUMERIC
1
2
3
4
PUNCH SUPPRESS
ERROR
UPPER
READY
REVERIFY
PUNCH CHECK
CHANGE
ALPHA
STACKER
FEED CHECK
READ CHECK
HOPPER
ZERO FILL
BLANK FILL
PROG 4
PROG 3
PROG 5
PROG 2
PROG 6
PROG 1
PROG 7
NONE
PROG 8
INDICATORS
PROGRAM REVERT SWITCH
PRINT CONTROL SWITCH
MODE SWITCH
ON LINE
OFF
PRINT
VER PRINT
PRINT EDIT
VER PRINT EDIT
OFF
PUNCH SUPPRESS
PROG LOAD
PUNCH
VERIFY
REPRODUCE
INTERPRET
START
STOP
RESET

Figure 2-20. Card Reader/Punch Operator Panel

(3) Controller Panel. The controller panel (fig. 2-21) contains both controls and indicators used during operation. See TM 11-7040-200-10 for operating instructions.

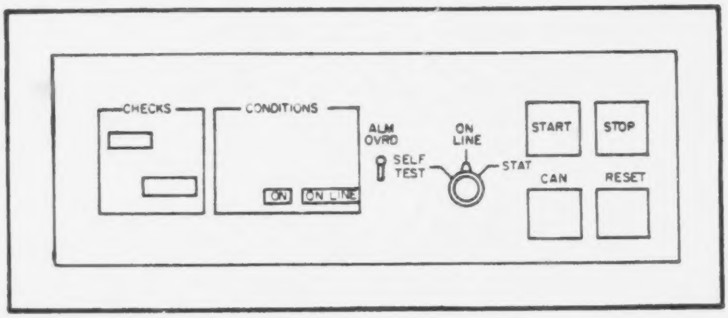

CHECKS
CONDITIONS
ON
ON LINE
ALM OVRD
SELF TEST
ON LINE
STAT
START
STOP
CAN
RESET

Figure 2-21. Card Reader/Punch Controller Panel

(4) Keyboard Keys and Controls. The keyboard (fig. 2-22) contains three control switches, 19 function control keys, 34 data keys (which provide 63 input letters, numbers and characters), and a space bar (which provides a blank data space). The control switches and function keys are used in conjunction with the operator panel controls for selecting and controlling modes and functions. The data keys and space bar are used for keying data into the buffer memory for punching and printing cards. See TM 11-7040-200-10 for operating instructions.

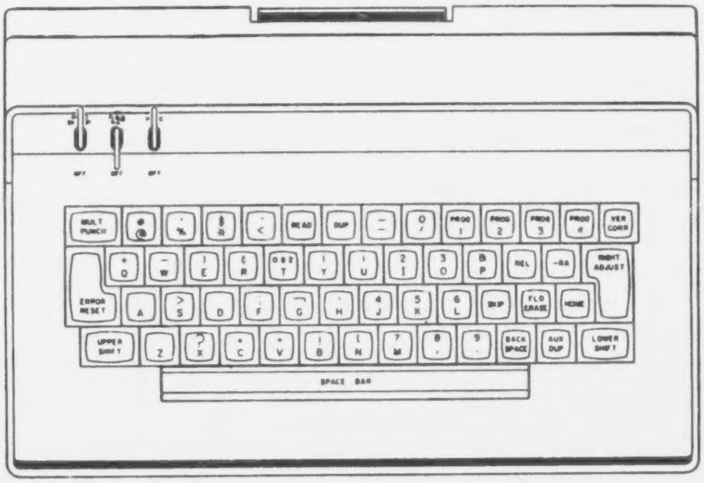
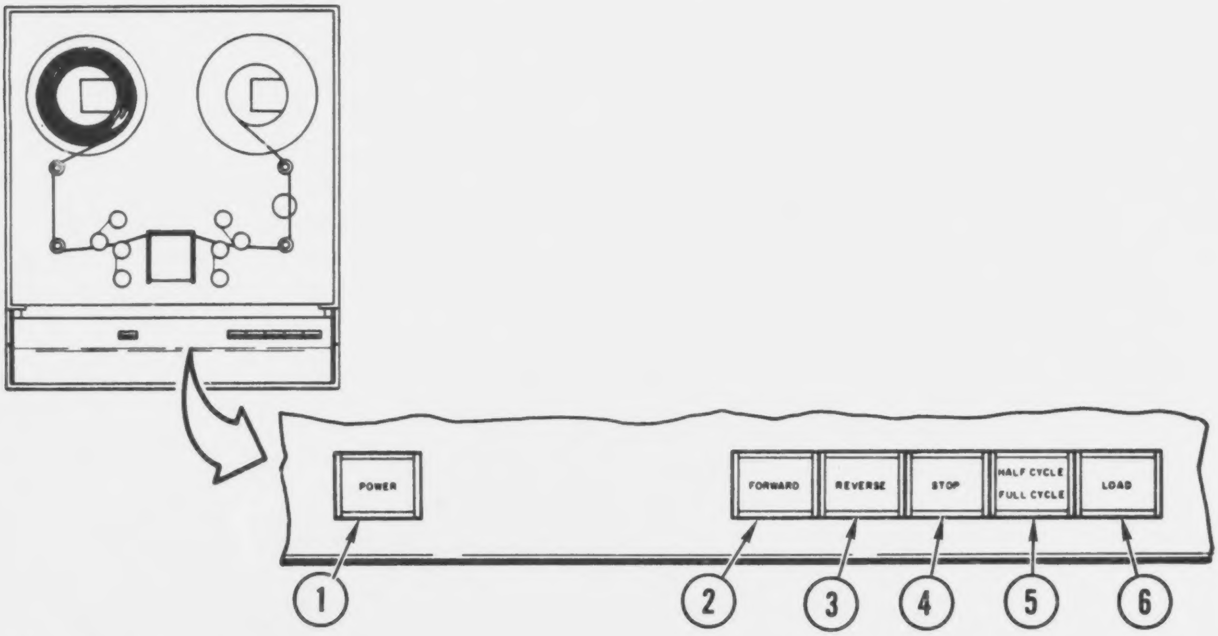

MULT PUNCH
READ
DUP
PROG 1
PROG 2
PROG 3
PROG 4
VER CORR
REL
RIGHT ADJUST
ERROR RESET
SKIP
FLD ERASE
HOME
UPPER SHIFT
BACK SPACE
AUX DUP
LOWER SHIFT
SPACE BAR

Figure 2-22. Card Reader/Punch Keyboard

i. Tape Cleaner Controls and Indicators. The tape cleaner located above the bulk storage cabinet provides cleaning of half-inch wide magnetic tape. Maximum size is 10-1/2 inches. Two reel hubs secure the supply real (tape to be cleaned) and a takeup reel to the tape cleaner. Four pairs of spools hold tissue rolls which wipe both sides of the tape. A band blade scrapes imbedded particles from the oxide side of the tape. The tape being cleaned has a beginning of tape (BOT) and end of tape (EOT) marker. These markers designate the beginning and end of the usable (recorded) portion of tape. A detector on the tape cleaner senses these markers to ensure that this is the portion of tape cleaned. The tape cleaner is controlled by pushbuttons on the operator control panel (fig. 2-23). When you press a button and the tape cleaner responds, an indicator inside the button lights. For example, if you press POWER, the tape cleaner powers on and the button lights.

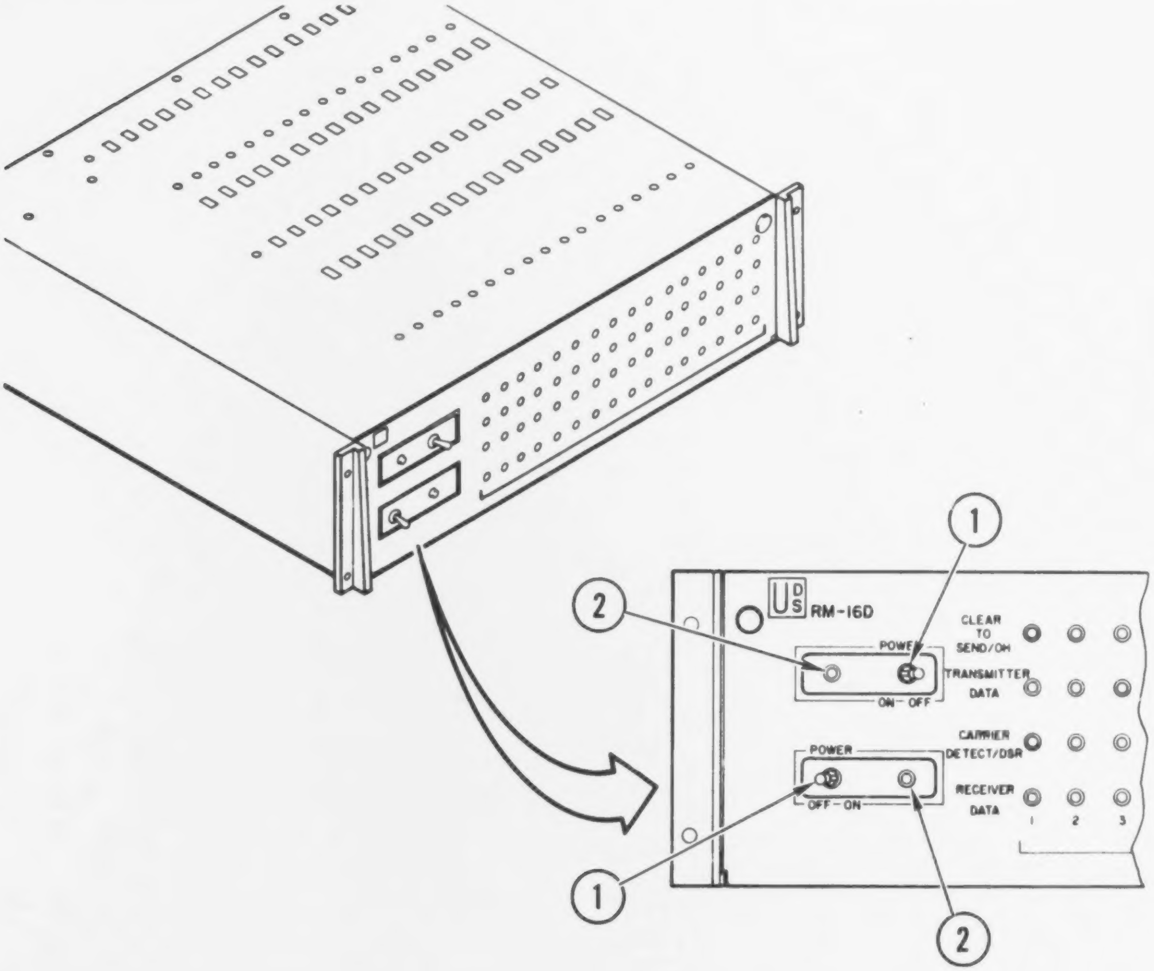


① POWER switch/indicator	Powers on/off tape cleaner. Lights to indicate power is on
② FORWARD switch/indicator	Advances magnetic tape. Lights to indicate tape is moving in forward direction
③ REVERSE switch/indicator	Rewinds magnetic tape. Lights to indicate tape is moving in reverse direction
④ STOP switch/indicator	Cancels FORWARD or REVERSE action. Lights to indicate tape has stopped
⑤ HALF CYCLE/FULL CYCLE switches/indicators	When selected, HALF CYCLE cancels automatic rewind function. Lights to indicate which function is selected
⑥ LOAD switch/indicator	Releases reel brakes to allow operator to thread tape to takeup reel. Lights to indicate tape is being loaded

Figure 2-23. Tape Cleaner Controls and Indicators

2-3. COMMUNICATIONS SUBSYSTEM CONTROLS AND INDICATORS

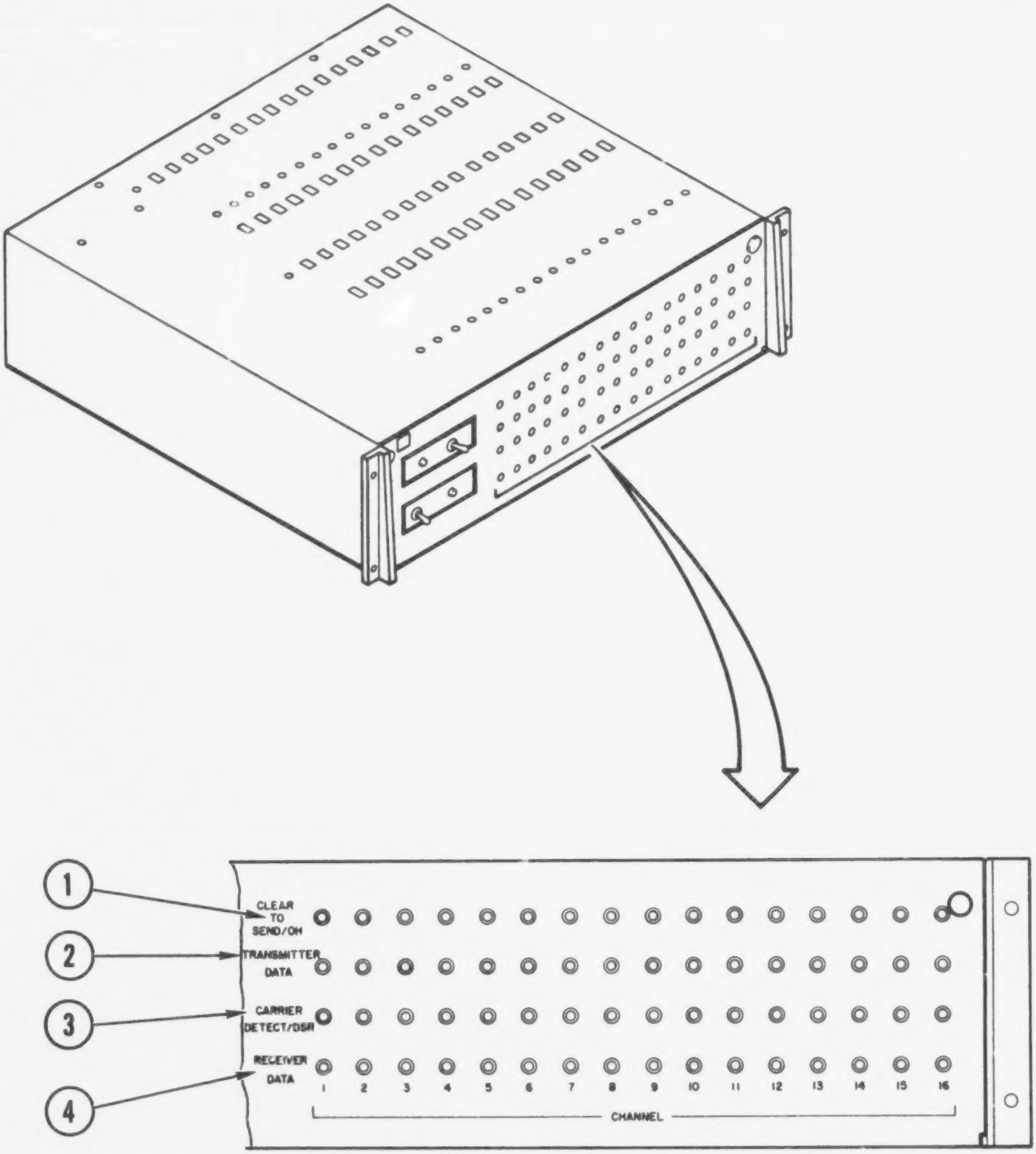
a. Quasi-Analog Modem Assembly. The quasi-analog modem assembly employs a frequency-shift-keyed method of transmission. It is located in communications cabinet B. Power ON/OFF control and indicators (fig. 2-24) and channel indicators (fig. 2-25) are located on the front panel of the assembly. There are 16 slots or channels in the quasi-analog modem assembly. Slots 1 thru 12 each contain a RM-2024, 1200/1800 bps asynchronous plug in board operating in a full duplex, 4-wire configuration. There is one board for each direct connected remote terminal. Slot 13 is used for a choice of boards, RM-12.12, RM-201B, or RM-201C with a variety of rates. All use synchronous modulation. Slots 14 and 15 are used for the 801A dialer board which handle calls through the telephone network. This board interfaces with optional boards in slots 13 and 16. Slot 16 is used for either a RM-1030 or an RM-12.12 board. Both use asynchronous modulation.



① POWER ON/OFF Switches - Powers ON/OFF modem assembly power supply.

② POWER Indicator - Lights to indicate power ON. Blinking or not lit with power switch ON indicates faulty power supply.

Figure 2-24. Quasi-Analog Modem Assembly Power Controls and Indicators


①
②
③
④
CLEAR TO SEND/OH
TRANSMITTER DATA
CARRIER DETECT/DSR
RECEIVER DATA
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
CHANNEL

① CLEAR TO SEND/OH Indicators - Light steady when the transmitter carrier is ON. Blink when a ring signal is present.

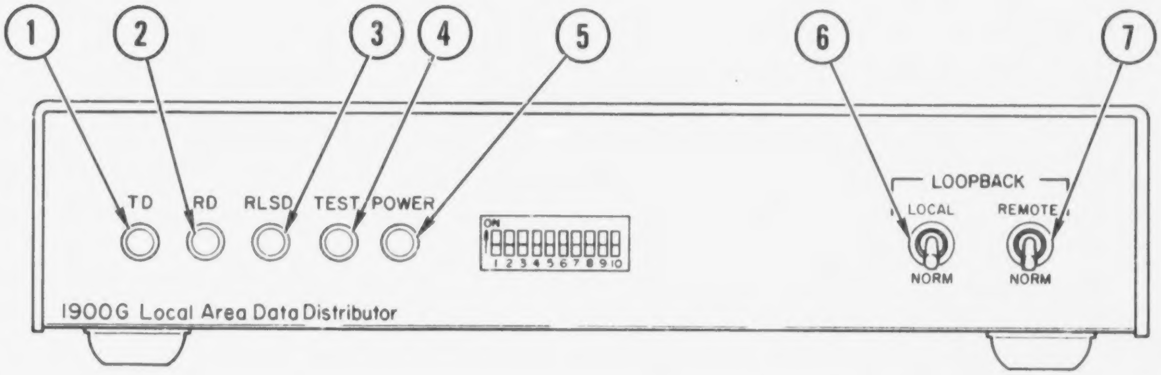
② TRANSMITTER DATA Indicators - Blink during the space of the transmission.

③ CARRIER DETECTOR/DSR Indicators - Light steady when a carrier signal is being received.

④ RECEIVER DATA Indicators - Blink during receiving space.

Figure 2-25. Quasi-Analog Modem Assembly Channel Indicators

b. 1900G Converter. There are two 1900G converters in the A cabinet which provide data communications with AUTODIN or to another DAS3 (D/C) or an IBM computer up to 2 km away. The converter can transmit up to 9600 bps. Converter number 1 is the AUTODIN converter and converter number 2 is used for DAS3 (D/C) to DAS3 (D/C) hookup or DAS3 (D/C) to an IBM computer which has the same protocol. Each converter can be used as a backup unit to the other (fig 2-26).



① TD Indicator - The Transmit Data (TD) indicator monitors the transmit data input. When indicator lights there is activity on the transmit data line.

② RD Indicator - The Receive Data (RD) indicator monitors the receive data input. When Indicator lights there is activity on the receive data line.

③ RLSD Indicator - The Received Line Signal Detector (RLSD) indicator lights when a carrier is detected on the line.

④ TEST Indicator - This indicator will light any time the converter is in the test mode.

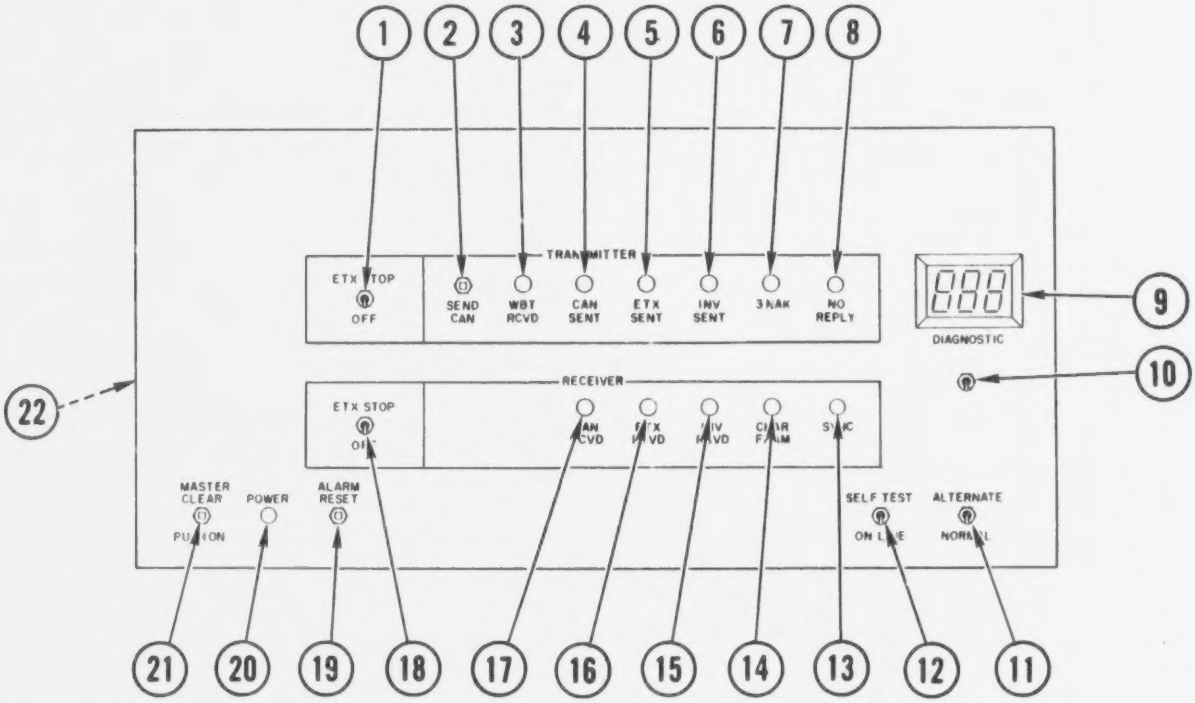
⑤ Power Indicator - Power indicator lights any time there is power on the line.

⑥ Loopback Switch I - In the normal position the 1900G sends and receives data over communication lines. In the local position the 1900G is in a self test mode.

⑦ Loopback Switch II - In the normal position the 1900G sends and receives data over communication lines. In the local position the 1900G tests the remote unit to which it is attached.

Figure 2-26. 1900G Converter

c. Telecommunications Line Controller Controls and Indicators. The telecommunications line controller (TLC) (fig. 2-27) functions include data buffering, validation, formatting, and conversion and is used in conjunction with the DAS3 (D/C) AUTODIN capability.


1
2
3
4
5
6
7
8
TRANSMITTER
ETX STOP
OFF
SEND CAN
WBT RCVD
CAN SENT
ETX SENT
INV SENT
3 NAK
NO REPLY
DIAGNOSTIC
9
10
22
RECEIVER
ETX STOP
OFF
CAN RCVD
ETX RCVD
INV RCVD
CLEAR FRAM
SYNC
MASTER CLEAR
PUSH ON
POWER
ALARM RESET
SELF TEST
ON LINE
ALTERNATE
NORMAL
21
20
19
18
17
16
15
14
13
12
11

① ETX STOP/OFF (TRANSMITTER) - the position of this switch has no effect when operating in the NORMAL mode.

② SEND CAN - Pushbutton switch. Press to send a CAN (cancel) sequence when an error in transmission is detected.

③ WBT RCVD - Lights when a Wait Before Transmitting (WBT) control sequence is received. The indicator goes out when any response other then WBT is received.

④ CAN SENT - Lights when a cancel (CAN) sequence is sent and ACK 2 response is received. The indicator goes out when the next message block or a second CAN SENT is transmitted. When a second CAN sequence is transmitted, the CAN SENT indicator goes on when an ACK 2 response is received.

⑤ EXT SENT - Lights when the End of Text (ETX) sequence is transmitted and correctly acknowledged.

⑥ INV SENT - Lights when a Suspected Invalid Message (INV) sequence is transmitted by the TLC. To turn off the INV SENT indicator, press the ALARM RESET switch.

Figure 2-27. Telecommunications Line Controller (1 of 2)

⑦ 3 NAK - Lights when repeated transmission of a line block results in three negative responses. The 3 NAK indicator goes out when the proper response is received.

⑧ NO REPLY - Lights when a line block, a Cancel (CAN), or a Reply (REP) is sent three times and no reply is received.

⑨ Diagnostic Display - Displays TLC status and error codes.

⑩ DIAGNOSTIC - Toggle switch. To place the TLC in DIAGNOSTIC operation, place the switch in the up position and press the MASTER CLEAR pushbutton. To return to normal operation, place the switch in the down position and press the MASTER CLEAR pushbutton.

⑪ ALTERNATE/NORMAL (TRANSMITTER) - Toggle switch. Used to select the NORMAL (the CPU) or the ALTERNATE (usually a TTY device) as the active transmit/receive device to the TLC. In this system, there is no ALTERNATE device, and the switch position has no effect. The system operates in the NORMAL mode.

⑫ SELF-TEST/ON-LINE - Toggle switch. When you place the switch in the SELF TEST (up) position, the TLC stops responding to traffic. In the ON LINE (down) position, the TLC transfers traffic. The MASTER CLEAR must be pressed after the toggle switch is pressed.

⑬ SYN - Lights when synchronous idle (SYN) characters are being received.

⑭ CHAR FRAME - Lights when four consecutive synchronous idle (SYN) characters are received.

⑮ INV RCVD - Lights when a Suspected Invalid Message (INV) is received. To turn off the indicator, press the ALARM RESET pushbutton.

⑯ ETX RCVD - Lights when the end of text (ETX) message is received and acknowledged.

⑰ CAN RCVD - Lights when the message being received has been canceled by the transmitting station with a CAN sequence and the ACK 2 response was returned.

⑱ EXT STOP/OFF (RECEIVER) - Toggle switch. Place in the OFF (down) position to allow the TLC to receive messages. When the ETX STOP is in the (up) position incoming messages are not delivered to the output device; the TLC is in a wait condition, and no messages are lost. When in the OFF (down) position, incoming messages are forwarded to the local output device.

⑲ ALARM RESET - Momentary pushbutton switch. Press to make the audible and visual alarm indicators go out.

⑳ POWER - Toggle switch, which also functions as a circuit breaker. When a power overload occurs, the switch automatically goes to the OFF (down) position and displays a white sleeve indicator. Place the switch in ON (up) position to turn power back on.

㉑ MASTER CLEAR - Momentary pushbutton switch. Press the switch to cause the TLC to initialize and clear the TLC.

㉒ SONALERT - Located on the rear panel, sounds when a high-priority message is received, or when either the INV RCVD, INV SENT, or the REPLY indicator lights. The SONALERT stops when the ALARM RESET pushbutton is pressed.

Figure 2-27. Telecommunications Line Controller (2 of 2)

d. Crypto Auxiliary Unit (CAU). The Crypto Auxiliary Unit (fig. 2-28) functions include automatic synchronization with external stations, timing and traffic control, and asynchronous to synchronous conversion.

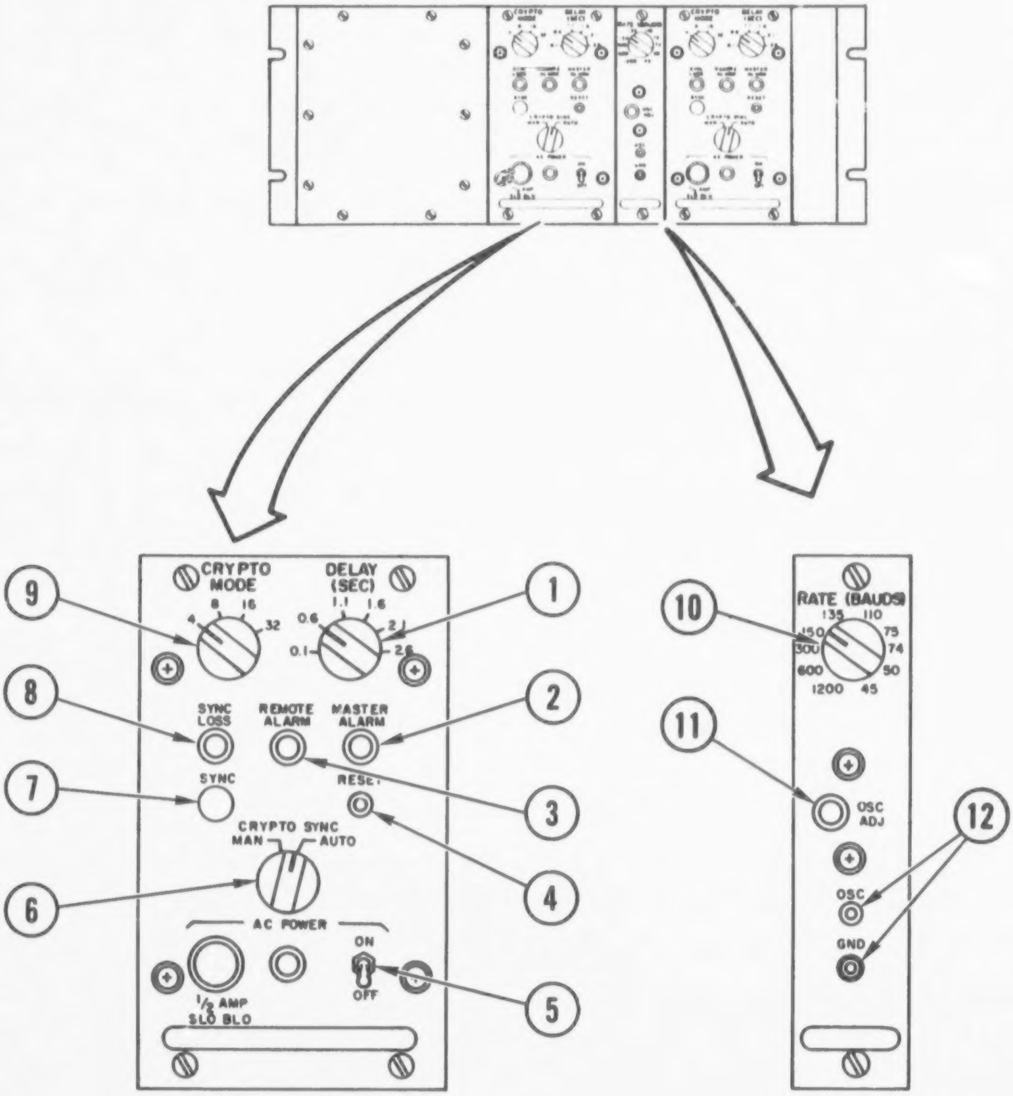

CRYPTO MODE
4
8
16
32
DELAY (SEC)
0.1
0.6
1.1
1.6
2.1
2.6
SYNC LOSS
REMOTE ALARM
MASTER ALARM
SYNC
RESET
CRYPTO SYNC
MAN
AUTO
AC POWER
ON
OFF
1/2 AMP SLO BLO
RATE (BAUDS)
135
110
150
75
300
74
600
50
1200
45
OSC ADJ
OSC
GND
1
2
3
4
5
6
7
8
9
10
11
12

Figure 2-28. Crypto Auxiliary Unit (1 of 2)

NOTE

Synch cycle starts as soon as ac power is switched ON. Set up all control switches before switching on power and make fine tuning adjustments after power is switched ON. Exact time required to synchronize is a function of baud rate and equipment control settings.

① DELAY (SEC) Switch - Selects smallest delay (in seconds) necessary to maintain synchronization (if delay is not known, start with largest setting and work down to smallest necessary setting).

② MASTER ALARM Indicator - Lights up red to indicate three unsuccessful synchronization trys, or alarm checks, or loss of signal at modem.

③ REMOTE ALARM Indicator - Lights up white (clear) on no synchronization reply from remote terminal.

④ RESET Switch - Starts alarm check cycle and then resynchronizes, when pressed.

⑤ AC POWER ON/OFF Switch - Applies power to CAU when set to ON.

⑥ CRYPTO SYNC Switch - (MAN) releases control to crypto device for manual synchronization during maintenance. (AUTO) normal automatic synchronization setting.

⑦ SYNC Switch - Starts a synchronization cycle when pressed.

⑧ SYNCH LOSS Indicator - Lights up red on loss of synchronization.

⑨ CRYPTO MODE Switch - Selects mode setting for crypto unit (establishes correct time delay)

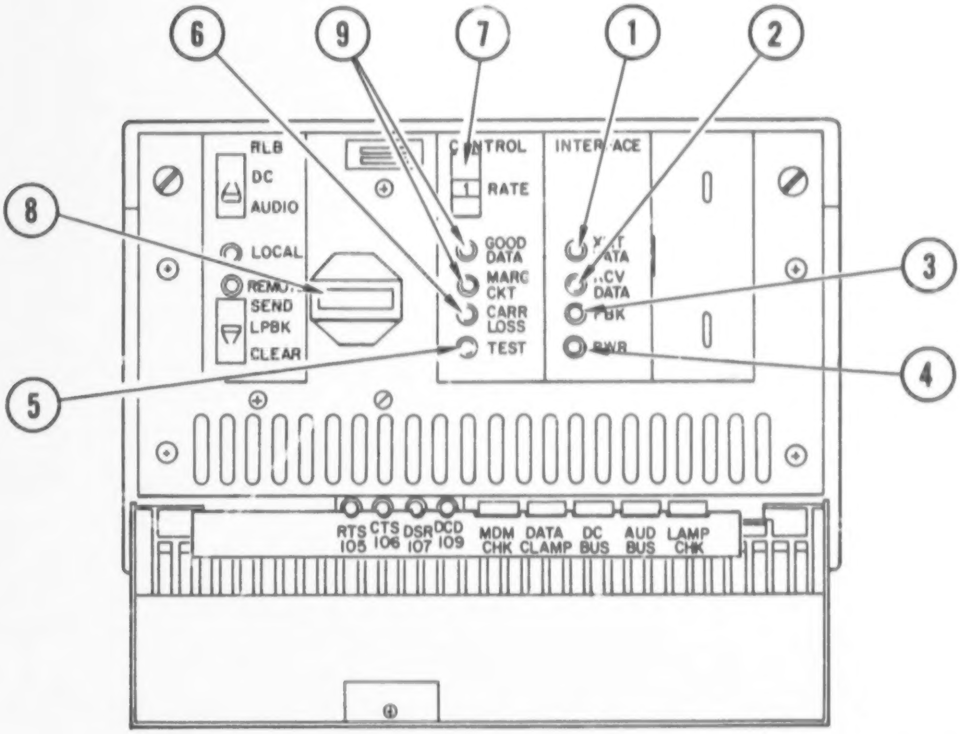
⑩ RATE (BAUDS) Switch - Selects 1 of 10 internal time base asynchronous operating frequencies.

⑪ OSC ADJ Trimpot - Used only by maintenance personnel to adjust fine frequency for time base oscillator.

⑫ OSC AND GND Jacks - Tests points for monitoring equipment (oscillator output) jack-plugs.

Figure 2-28. Crypto Auxiliary Unit (2 of 2)

e. V.29 Modem. The V.29 modem located in the A cabinet (fig. 2-29) is a high speed unit with baud rates from 2400 to 9600 bits-per-second. There are two V.29 modems. Modem number 1 is for AUTODIN and modem number 2 is for bulk data transfer between the DAS3 (D/C) and another DAS3 (D/C) or to an IBM 360 computer.


6
9
7
1
2
8
3
5
4
RLB
DC
AUDIO
LOCAL
REMOTE
SEND
LPBK
CLEAR
CONTROL
1
RATE
GOOD DATA
MARG CKT
CARR LOSS
TEST
INTERFACE
XMT DATA
RCV DATA
FBK
PWR
RTS 105
CTS 106
DSR 107
DCD 109
MDM CHK
DATA CLAMP
DC BUS
AUD BUS
LAMP CHK

① XMT DATA Indicator - Lights up yellow when data is being transmitted.

② RCV DATA Indicator - Lights up yellow when data is being received.

③ FBK Indicator - Lights up red when RATE switch is not in pos 1 or automatic fallback is occurring.

④ PWR Indicator - Lights up green when regulated voltage is present.

⑤ TEST Indicator - Lights up red if direct distance dialing (DDD) option switch is in backup position. Blinks when any test switch is pressed.

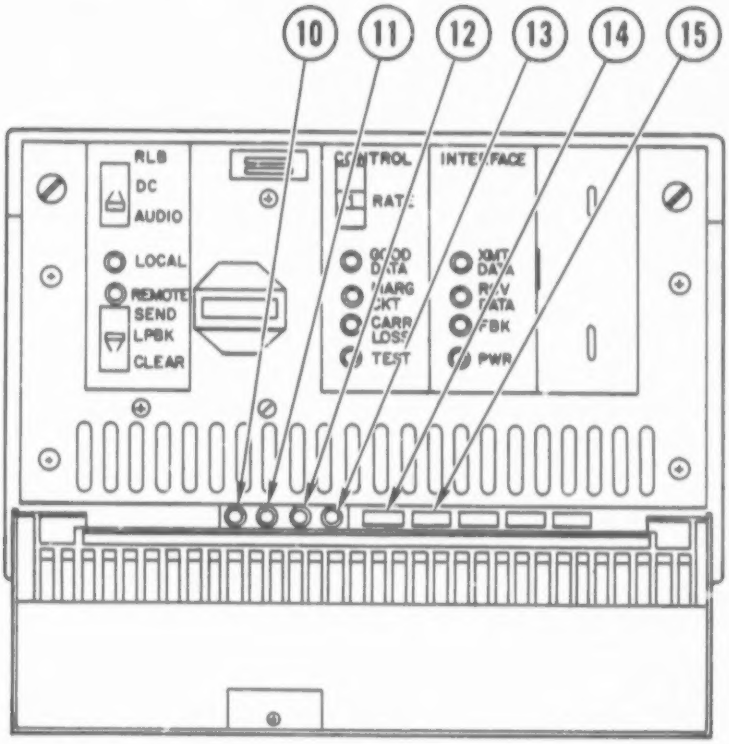
⑥ CARR LOSS Indicator - Lights up red on loss of remote modem signal.

⑦ Thumbwheel Baud Selector - Has five settings (para 2-64).

⑧ BAUD RATE Indicator - Indicates the data transmission rate.

⑨ GOOD DATA/MARG CKT Indicators - Lights up green when signal error rate is acceptable. Stays lit if a slight error rate occurs and the marginal circuit indicator lights up yellow. A large error rate causes green to go OFF-yellow stays ON.

Figure 2-29. V.29 Modem (1 of 3)


10
11
12
13
14
15
RLB
DC
AUDIO
LOCAL
REMOTE
SEND
LPBK
CLEAR
CONTROL
RATE
GOOD DATA
CARR LOSS
TEST
INTERFACE
XMT DATA
RCV DATA
FBK
PWR

⑩ RTS (Request to Send) indicator - Lights when data terminal provides a Request to Transmit data signal to modem transmitter.

⑪ CTS (Clear to Send) indicator - Lights when modem transmitter is ready to accept data from terminal.

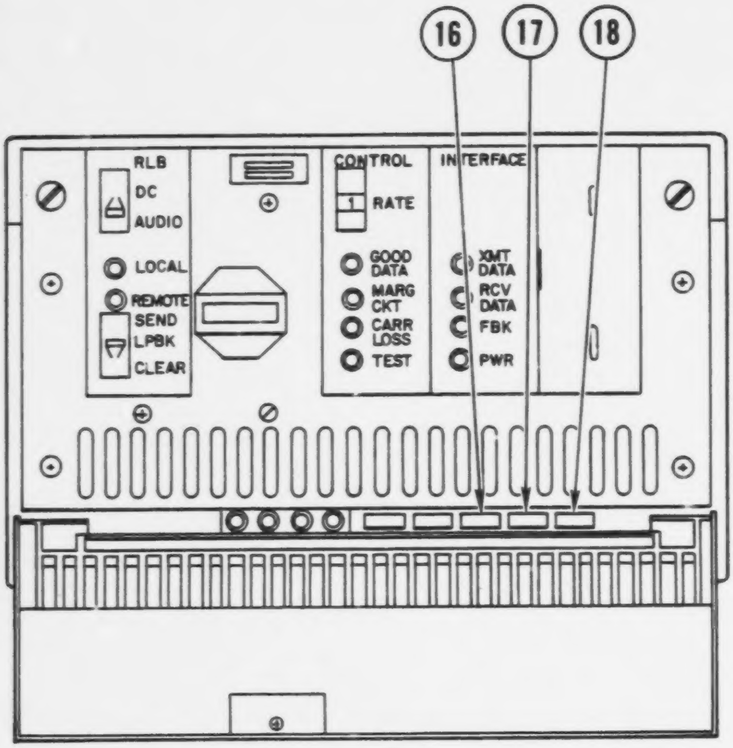
⑫ DSR (Data Set Ready) indicator - Lights when power is on and modem is not in the TEST mode.

⑬ DCD (Carrier Detect) indicator - Lights when received audio signal is detected.

⑭ MDM CHK switch - When pressed, causes TEST indicator to blink, terminates transmit and receive telephone lines in 600 ohms, and loop modem transmitter output to receiver input through AGC.

⑮ DATA CLAMP switch - When pressed, causes TEST Indicator to blink, blocks transmit input data, and clamps transmit data input to a Space condition that can be traced through the communications link. The receiving modem displays any error outputs when its DATA CLAMP switch is also activated, allowing bit error rate to be approximately determined without having to use a test pattern generator.

Figure 2-29. V-29 Modem (2 of 3)


⑯
⑰
⑱
RLB
DC
AUDIO
LOCAL
REMOTE
SEND
LPBK
CLEAR
CONTROL
1
RATE
GOOD DATA
MARG CKT
CARR LOSS
TEST
INTERFACE
XMT DATA
RCV DATA
FBK
PWR

⑯ DC BUS switch - When pressed, causes TEST indicator to blink, isolates local data terminal from modem by looping terminal's data and clock output back to its input, and connects a local modem receiver output data to transmitter data input. The remote modem receives its own transmitted data back through the local modem and telephone lines.

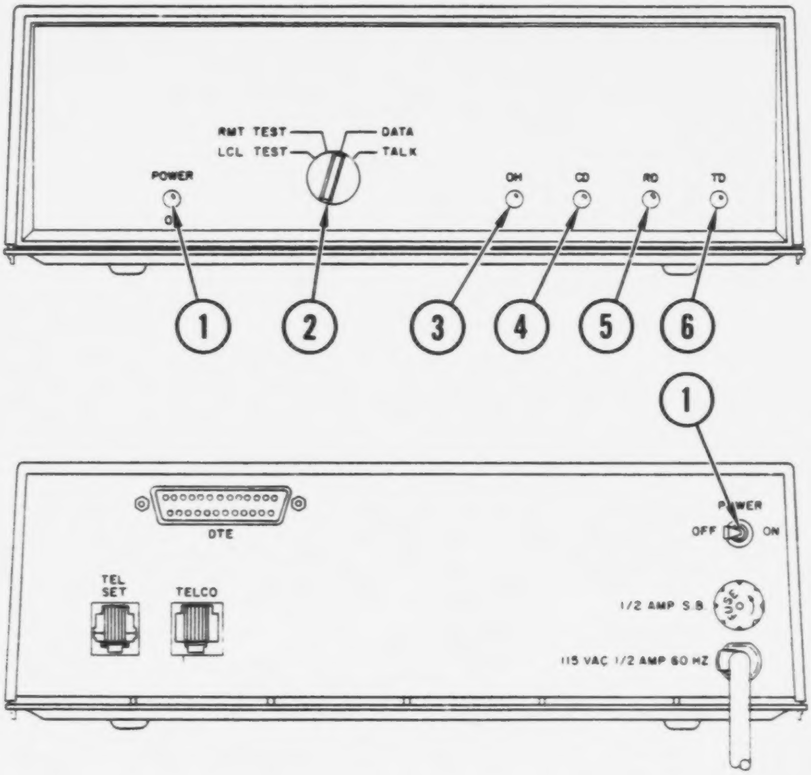
⑰ AUD BUS switch - When pressed, causes TEST indicator to blink and connects receive telephone line through receiver AGC to transmit output amplifier. Transmit audio signal, which normally feeds the transmit output amplifier, is connected to the receiver input, post-AGC. This allows the local data terminal to receive its own output data back through the local modem transmitter and receiver, and provides an audio loopback for the remote modem through the local modem's transmit output amplifier and receiver AGC circuits.

⑱ LAMP CHK switch - Pressing the momentary-contact LAMP CHK switch should light all the modem indicators. Operation of the LAMP CHK switch does not affect normal data transmission and reception.

Figure 2-29. V-29 Modem (3 of 3)

best copy available

f. 103J Modem. The 103J modem (fig 2-30) is a 0-300 bps unit located in the bulk storage cabinet next to the crypto rack. It will be used in conjunction with crypto equipment and can be used with interactive remote terminals using the same modem interface. It has its own auto answer capability. Instructions on its use will be site-specific.



① Power On Indicator - Lights when power is applied at toggle switch on back of modem

② TEST Selector Switch - when set to TALK permits voice communication, when in the DATA position transmits data; when set to LCL TEST performs a local loopback test; when set to RMT TEST performs a test of both modems and the interconnecting transmission lines.

③ OH Indicator - blinks while the ringing current is present. Remains lighted when the modem goes "off hook". Goes off when the call is terminated.

④ CARRIER DETECT Indicator - lights when a carrier is detected by the receiver.

⑤ RD - Receive Data Indicator - Lights while receiving, decoding and furnishing data to CPU.

⑥ TD - Transmit Data Indicator - Lights when modem has data for transmission.

Figure 2-30. 103J Modem

g. The 600GR Converter Assembly. The 600GR converter assembly located in cabinet B consists of a 19-inch equipment rack which contains 12 individual converter boards, each with its own power supply. Each converter board consists of a transmit and receive section. The transmit section generates a dc level carrier signal which is sent to the receive section of an identical converter board at the other end of the communications line. The 12 boards are for each of the 12 remote devices which can interface with the DAS3 (D/C).

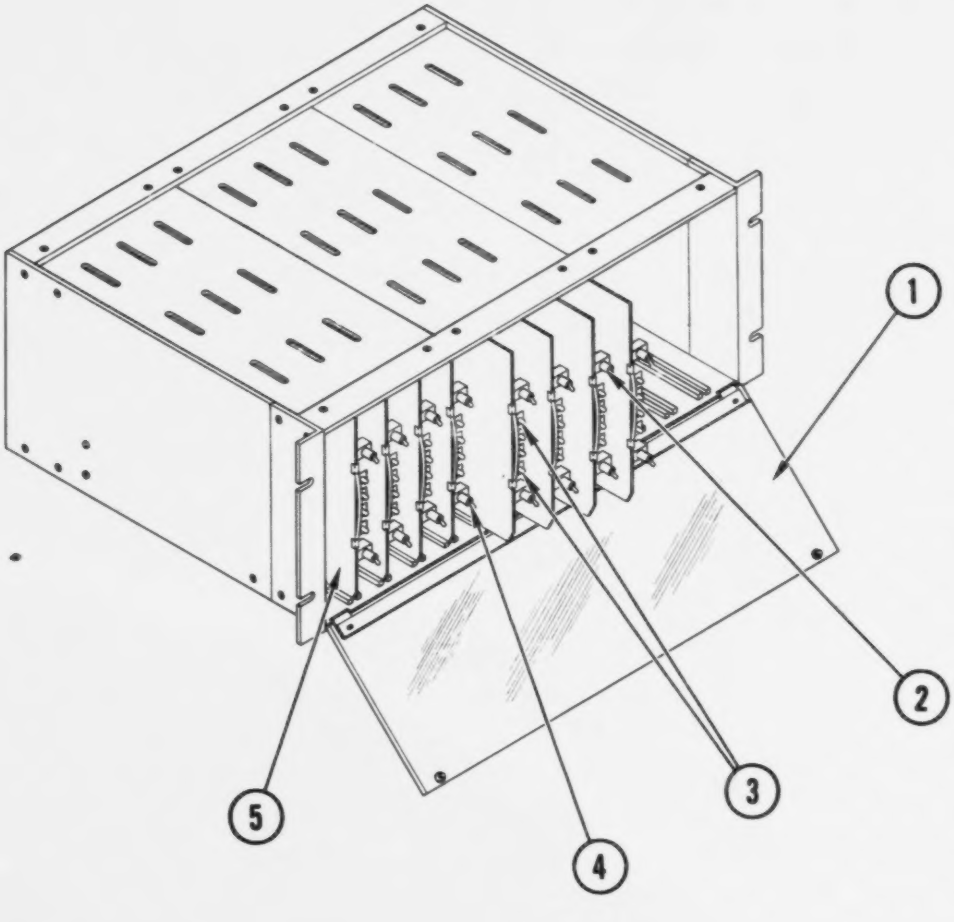


Figure 2-31. 600GR Converter Major Components (1 of 2)

① Front Panel - Hinged translucent plastic panel which provides access to converter boards and switches. When the panel is closed (normal) position, indicator lamps are visible but switches are not accessible, preventing accidental activation of test switches.

② Distance Short/Long Switch: Short - Long - Two position toggle switch. SHORT position used for distances less than 2 KM. LONG position for distances greater than 1.8 KM. The distances which are common indicate an equal performance in either position.

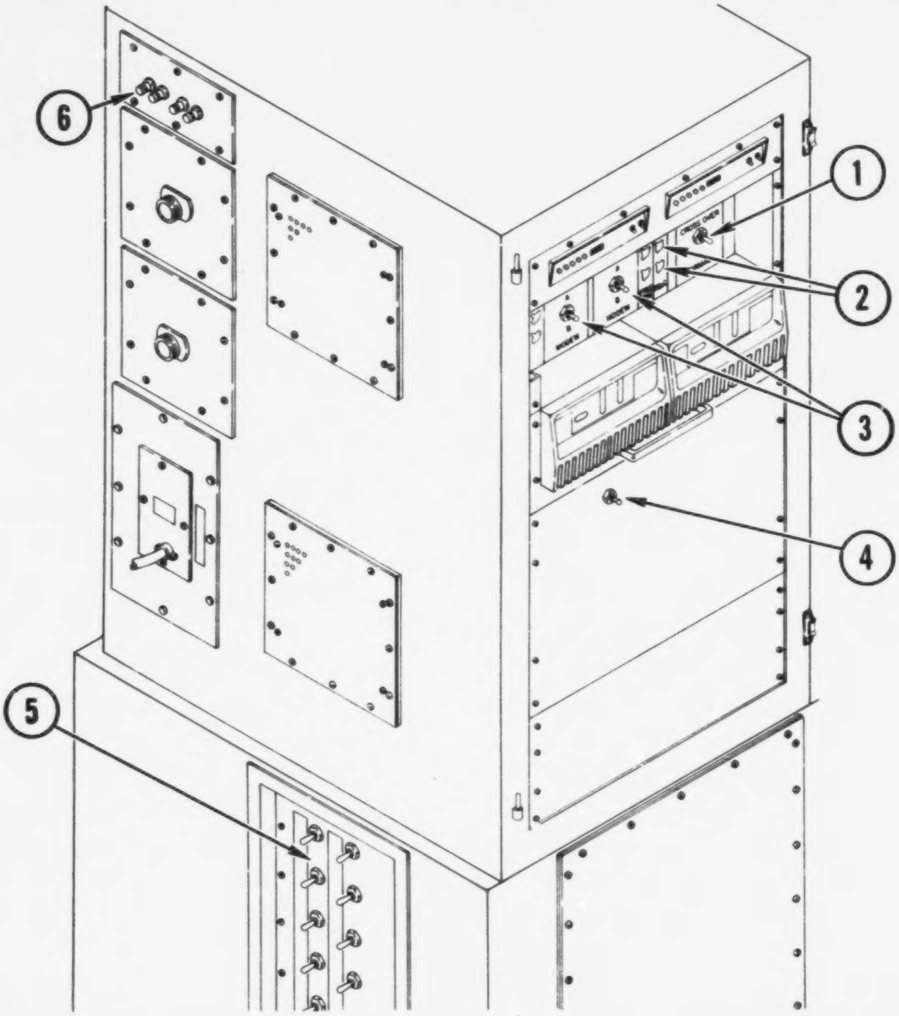
③ Front Panel Indicators - ID - Transmit data indicator is lit whenever a space is transmitted. RD - When lit, indicates signal activity on the Receive Data Line. Indicator is not lit when circuit is in continuous marking state. Intensity of display varies with data transmission activity on the line. RLSD - When lit, indicates a signal is being received. POWER - When lit, indicates presence of power supply voltage when it is in acceptable operational limits.

④ LPBK/NORM - Two position toggle switch selects loopback feature which assists in quick fault isolation during checkout and installation. In LBPK position, the local unit is tested by internally connecting the transmitter to the receiver. In this position, the Transmit Data (TD) will exercise the unit and will be returned as Receive Data (RD) if the unit is operating correctly. If a remote unit is connected to the system, the transmit data from the remote terminal goes to the local modem's receive amplifier and is looped directly to the modem's transmit amplifier and back to the remote terminal, testing both converters and the transmission lines.

⑤ Channel Modules - Each 600 GR converter printed wiring board is a plug-in module with individual power supply. Each functions as a interface between your system computer and signal lines to a remote terminal or computer.

Figure 2-31. 600GR Converter Major Components (2 of 2)

h. Cabinet A Switches and Patch Modules. Switches and patch modules on the front of cabinet A (fig. 2-32) allow modem or converter selection, patching between different input lines and CPU channels, and switching data transmission paths.



① Crossover Switch - Switches data path from channel 1 to channel 2 or from channel 2 to channel 1.

② Patch Modules - permit routing of signal lines to CPU channels being accessed to or from AUTODIN, 2780/3780 or HDLC.

③ MODEM - CONVERTER Switches - switch data path from V.29 modem to 1900G converter.

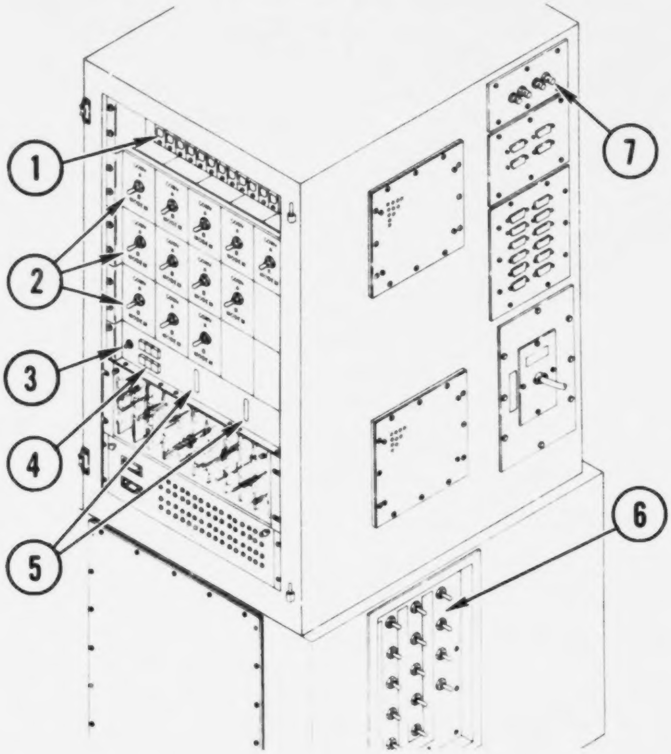
④ Voice/Data Switch - switches line to either four wire data or four wire voice capability.

⑤ Binding Post/Connector Switch Panel - toggle switches permit selection of lines to binding posts or connector.

⑥ Telephone Binding Posts - for telephone connection permitting voice communications with another DAS3 (D/C).

Figure 2-32. Cabinet A Switches and Patch Modules

i. Cabinet B Switches and Patch Modules. Switches and patch modules on the front of cabinet B (fig. 2-33) allow modem selection, patching around defective modems, and switching between voice and data transmission over telephone lines, and switching from two pair to four pair telephone wire connectors.



① Patch Modules - permit rerouting communications between the CPU and a remote device if a modem/interface in the normal route fails.

② MODEM - CONVERTER switches - select either the quasi-analog modem or 600GR converter for data transmission. Each assembly contains circuit boards, one for each remote terminal. In addition the quasi analog modem assembly contains four circuit boards for autocall/auto answer.

③ Two Wire/Four Wire Switch - selects either a two wire or four wire hookup for voice/data communications.

④ Two Wire Voice/Data Switches - two switches with three buttons for manual voice/data send or data receive. Top bank is for telephone pair 25, lower bank is for pair 26.

⑤ DAA Observation Ports - Data Access Arrangement indicators. When lit indicate there is an overload on the line. Left port is for modem boards in slots 13 and 14 (pair 25), right port is for modem boards in slots 15 and 16 (pair 26).

⑥ Binding Post/Connector Switches - toggle switches permit direct wire (binding post) or 26 pair telephone line (connector) access to remote terminals.

⑦ Telephone Binding Posts - when telephone is connected, permits voice communications.

Figure 2-33. Cabinet B Switches and Patch Modules

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

2-4. GENERAL

Operator's Preventive Maintenance Checks and Services (PMCS) are the required daily, weekly, and monthly inspection and care of the equipment necessary to keep it in good operating condition. PMCS shall be done before (B) operation, during (D) operation and after (A) operation. Other checks and services are done on a weekly (W) and monthly (M) cycle.

NOTE

Always observe all WARNINGS and CAUTIONS when you perform the PMCS procedures.

a. Before operation. Do your before (B) PMCS to be sure that the equipment is ready for operation.

b. During operation. Do your during (D) PMCS to be sure that the equipment is operating properly.

c. After operation. Do your after (A) PMCS so that the equipment will be ready for future operation.

d. If your equipment fails to operate. Refer to chapter 3 for troubleshooting procedures. Report any deficiency on DA Form 2404. See TM 38-750.

2-5. PMCS PROCEDURES

PMCS procedures are done at fixed intervals for the following purposes:

- Make sure that the equipment is operable
- Prevent equipment problems in future operation
- Identify and resolve minor problems in the equipment before they become major problems
- Scheduled cleaning of the equipment

a. PMCS Table. Table 2-3 lists recommended daily, weekly, and monthly checks and services for each subsystem of DAS3 (D/C). Each item of the daily (B, D, A) interval should be inspected by the assigned operator at the interval indicated. Items listed for weekly or monthly inspection may be done by any member of the operating crew or as a crew activity. When done as a crew activity, the crew supervisor may assign specific inspection items to each crew member using the item number.

When you observe faulty operation of equipment during PMCS inspection, you must report it on the proper form and tell your supervisor.

(1) Item Number Column. The checks and services are numbered in chronological order. The numbers in this column shall be used in the TM Item No. column of DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording results of PMCS.

(2) Interval Column. This column identifies the interval at which the check or service is performed. Only those columns are used which are pertinent to the equipment.

(3) Item To Be Inspected Column. The equipment or portion of the equipment being checked or serviced is listed in this column.

(4) Procedures Column. This column contains the check or service procedure.

(5) Equipment Is Not Ready/Available If: Column. The reason why an equipment will be classified as unable to perform its mission will be given in this column. An entry in this column will:

(a) Identify conditions that make the equipment not ready/available for readiness reporting purposes.

(b) Deny use of the equipment until corrective maintenance has been performed.

b. Routine Checks. Checks like equipment inventory, cleaning, dusting, washing, checking for frayed cables, storing items not in use, covering unused receptacles, and checking for loose nuts and bolts are not listed in your PMCS. They are things you should do anytime you see they must be done. If you find a routine check like one of these listed in your PMCS, it was listed because other operators reported problems with this item.

Table 2-3. Preventive Maintenance Checks and Services

NOTE

If the equipment must be kept in continuous operation, check and service only those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.

NOTE: Within designated interval, these checks are to be done in the order listed.

B = Before
D = During
A = After
W = Weekly
M = Monthly

Perform weekly as well as before PMCS if:
(1) You are the assigned operator and have not operated the equipment since the last weekly.
(2) You are operating the equipment for the first time.

Table 2-3. Preventive Maintenance Checks and Services -- Continued

Item No.	Interval B	D	A	W	M	Item to be Inspected	Procedures Check for and have repaired or adjusted as necessary	Equipment is Not Ready/Available If:
						Semitrailer Van		
1	●					Doors	Check entry door gaskets for cracks or rips.	
	●						Check door handle for normal and emergency operation.	Door handle jams or will not open door.
						AC Power		
2	●		●			Circuit Breakers	Check all circuit breakers as you operate them.	Switch action is sluggish or does not make contact.
3		●				Meters	Check for reading on control box and frequency converter.	
4		●				Indicators	Check indicators on power entrance panels.	One or more indicators not lit when source power is on to entrance panels.
							Check indicators on frequency converter power modules.	One or more power module indicators out or dimmer than rest.
						Environmental		
5		●				Temp Control Panel	Check setting on thermostat against reading on hygrometer.	Thermostat setting does not hold and van temp drifts higher or lower.
6	●					Humidifer	Check water level in pump tank. Fill with distilled water if level is below 1/4.	
7		●				Humidistat	Check dial operation. If humidifier is not running, increase setting until it runs then set humidistat back to usual setting.	Humidifier does not operate at any setting on humidistat when hygrometer shows low humidity in van.

Table 2-3. Preventive Maintenance Checks and Services -- Continued

Item No.	Interval					Item to be Inspected	Procedures Check for and have repaired or adjusted as necessary	Equipment is Not Ready/Available If:
	B	D	A	W	M			
8	●					Filters	Check for air movement through air conditioner filters.	Very little or no air moves with air conditioner on.
						Communications		
9	●	●				Modems Converters	Insure circuit breakers are on in power supply box	Power supply indicators blink on or off with power on.
							1. Set breaker off then on to establish good contact.	
							2. Check operations of positive locking toggle switches.	Toggle switch does not make contact.
						ADP Subsystem		
10	●					CPU	Power on and check operation of power supply cooling fans.	No air movement through CPU with power on.
							1. Listen for noise of fans running.	Cooling fan not running.
							2. Place your hand over back panel grille and check air flow.	
	●						Run QLTs.	Control panel locks or QLTs fail.
11	●	●				Disk Drives	Power on. Load disk pack. Look for CHECK indicator	Check indicator lights and stays on.

Table 2-3. Preventive Maintenance Checks and Services -- Continued

Item No.	Interval					Item to be Inspected	Procedures Check for and have repaired or adjusted as necessary	Equipment is Not Ready/Available If:
	B	D	A	W	M			
							CAUTION Should the conditions under 1, 2, or 3 below, be deteced report it to your supervisor and shut down the drive at once. Under these conditions the pack should not be installed on another drive without first ensuring the pack has not been damaged or contaminated. also do not attempt to operate the drive with another disk pack until full assurance is made by maintenance personnel that no damage or contamination has occurred to the drive heads or to the shroud area.	
							1. Check if head to disk contact may have occurred.	Audible "ping" or a scratching noise is heard, burning odor is detected.
							2. Check if head to disk contact has occurred. o Test by running fingertip along shroud wall and inspecting.	Concentric rings, nicks or areas where oxide has been removed are observed on disk surfaces. Small deposits of very fine black dust are observed on shroud walls.
							3. Check if error rate experienced on that disk drive is high.	Five to ten times normal error rate during data manipulation is occurring.
12	●					Keyboard-Display Terminals	Power on. Check for cursor and status line.	Cursor and status line not visible with power on.

Table 2-3. Preventive Maintenance Checks and Services -- Continued

Item No.	Interval					Item to be Inspected	Procedures Check for and have repaired or adjusted as necessary	Equipment is Not Ready/Available If:
	B	D	A	W	M			
		●					Check that display unit shows each character for key pressed during operation.	Display unit does not display character entered on keyboard.
13	●		●			Card Reader/ Punch	Check chip box. Empty if necessary.	
			●				Check both parabolas for dust or ink buildup. Clean if necessary.	Parabola chipped or scratched.
		●					Check for even passage of cards through mechanical assembly.	Card jams in mechanical assembly.
		●					Check that humidity is in 30% to 20% range.	Card jams or sticks to another.
14	●					Line Printer	Inspect character band for correct position.	
							Check quality of print. Install new ribbon cartridge if printout is light.	
	●						Check operation by running self test.	Self test printout shows missing characters or lines.
		●					Check that humidity is in 30% to 20% range.	Paper sticks.
15	●					Console Printer	Check operation by running self test.	Self test printout shows missing characters or lines.
		●					Check quality of print. Install new ribbon cartridge if printout is too light to read easily.	
		●					Check that humidity is in 30% to 20% range.	Paper sticks.

Table 2-3. Preventive Maintenance Checks and Services -- Continued

Item No.	Interval					Item to be Inspected	Procedures Check for and have repaired or adjusted as necessary	Equipment is Not Ready/Available If:
	B	D	A	W	M			
16	●					Magnetic Tape Cleaner	Check amount of clean tissue left on spools. Install new tissue if clean tissue is nearly out.	
17	●					Tape Drives	Check for oxide buildup on heads, tape guides and capstan. Clean if necessary: 1. Open dust cover and remove both head covers. CAUTION Do not use brush or abrasive compound to clean heads. Damage to heads will result. 2. Use a clean lint-free cloth and clean carefully. 3. Wipe surfaces of read/write head, erase head, head shield, tape guides and capstan. Remove all oxide and dust buildup. 4. Reinstall head covers.	
			●				Check vacuum chamber for oxide buildup. Clean if necessary: 1. Open chamber cover. WARNING Isopropyl alcohol is flammable. Do not use near high heat or open flame. 2. Dampen a clean lint-free cloth with isopropyl alcohol.	

Table 2-3. Preventive Maintenance Checks and Services -- Continued

Item No.	Interval					Item to be Inspected	Procedures Check for and have repaired or adjusted as necessary	Equipment is Not Ready/Available If:
	B	D	A	W	M			
							3. Wipe entire chamber except cover. Remove all oxide coatings from the surface of the chamber. Do not wipe chamber window with alcohol.	
							4. Dampen a clean lint-free cloth with clean water.	
							5. Clean both sides of vacuum chamber window. Dry with clean, lint-free cloth.	
							6. Close vacuum chamber window and dust cover.	
18	●					Power Plant	Check oil dipstick. Add oil if indicated.	
	●		●				Check fuel gauge. Add fuel if indicated.	
	●						Check ground rods, cables, and connectors for proper installation.	
	●						Check battery and cables. Tighten loose connections or mountings and remove corrosion. And battery water, if needed.	
		●					Check battery ammeter. It should show a plus reading.	
		●					Check oil pressure gauge. It should read between 20 psi and 60 psi.	
	●						Check radiator coolant level.	

Table 2-3. Preventive Maintenance Checks and Services -- Continued

Item No.	Interval					Item to be Inspected	Procedures Check for and have repaired or adjusted as necessary	Equipment is Not Ready/Available If:
	B	D	A	W	M			
						Semitrailer Van		
1				●		Van Level	Check using carpenter's level at four corners of van. If bubble is not within the level limit marks, level van.	
2				●		Fire Extinguishers	Check that fire extinguishers in vestibule and work area are in place.	
3				●		Panel Clock	Check that clock is working. If necessary, install new battery.	
4				●		Emergency Light	Push test button. Check that both lamps light.	
				●		Smoke Detector	Push test button. Check that alarm sounds and light comes on. If necessary, install new batteries.	
						AC Power		
5				●		Frequency Converter	Inspect air filter for buildup of dust. If filter is dirty, clean or replace it.	
						Environmental		
6				●		Air Conditioner Filters	Check for dust buildup on air conditioner intake filters. Clean if necessary: 1. Loosen screws and brackets holding filter. 2. Clean filter with warm soapy water. 3. Rinse filter in clean water. Shake off excess and wipe with dry cloth.	

Table 2-3. Preventive Maintenance Checks and Services -- Continued

Item No.	Interval					Item to be Inspected	Procedures Check for and have repaired or adjusted as necessary	Equipment is Not Ready/Available If:
	B	D	A	W	M			
							4. Reinstall filter. 5. Set brackets over filter and tighten screws.	
7				●		Vestibule Door Filter	Inspect filter in vestibule door for dust buildup. Clean if necessary. 1. Vacuum both sides of filter using soft bristle brush on vacuum cleaner. 2. If filter is still dirty, remove and wash with warm soapy water. 3. Rinse filter in clean water. Shake off excess and wipe with dry cloth. 4. Reinstall filter so arrows on edge point into vestibule.	
						ADP Subsystem		
8				●		Card Reader/ Punch	Check parabola and read sensors for dust or ink buildup. Clean with lint-free cloth or chip brush. WARNING Isopropyl alcohol is flammable. Do not use near high heat or open flame. 1. Dampen cotton swab or lint-free cloth with isopropyl alcohol. 2. Using swab or cloth, clean ink buildup from characters on print wheel.	Parabola chipped or scratched.

Table 2-3. Preventive Maintenance Checks and Services -- Continued

Item No.	Interval					Item to be Inspected	Procedures Check for and have repaired or adjusted as necessary	Equipment is Not Ready/Available If:
	B	D	A	W	M			
9				●		Line Printer	Vacuum the print band area. Check for unrestricted air flow.	
							Inspect character band and pulleys for ribbon lint buildup.	
							Check ribbon mask and ribbon for signs of wear or breaks.	Mask is cracked or broken.
							Clean ribbon motion sensor using alcohol.	
							Clean paper motion sensor using alcohol.	
10				●		Magnetic Tapes	Remove tapes from library and run them through tape cleaner (full cycle).	
						Semitrailer Van		
1					●	Doors	NOTE Radio frequency interference (RFI) shielding must be kept clean to provide good contact with van body.	
							Make certain jambs and thresholds are free of dust, dirt, and grime. If necessary clean as follows:	
							1. Using fine steel wool, remove any grease or grime buildup from jamb and threshold.	
							2. Wash with cleaning solvent (Fed Spec 0-C-1889)	

* Tapes are cleaned after every tenth run.

Table 2-3. Preventive Maintenance Checks and Services -- Continued

Item No.	Interval					Item to be Inspected	Procedures Check for and have repaired or adjusted as necessary	Equipment is Not Ready/Available If:
	B	D	A	W	M			
							3. Wipe with clean dry cloth.	
2					●	Body	Inspect body parts for damage: 1. Check for peeling paint or corrosion on exterior metal. 2. Open and close both doors to check for easy operation. 3. Check operation of door padlocks and latch.	
						Environmental		
3					●	Air Conditioners	Inspect air conditioner drain holes and fan grilles. 1. Make sure drain holes are not clogged. 2. Make sure fan grilles are not blocked with dirt, leaves or debris.	
						AC Power		
4					●	Ground Rods	Check both ground rods and grounding straps: 1. Make sure straps are not cut or loose. 2. Make sure both rods are installed.	
5					●	Power Cables	WARNING Electrocution may result if this check is done with source power on.	

Table 2-3. Preventive Maintenance Checks and Services -- Continued

Item No.	Interval					Item to be Inspected	Procedures Check for and have repaired or adjusted as necessary	Equipment is Not Ready/Available If:
	B	D	A	W	M			
							Check power cables from source to power entrance panel.	
							1. Make sure power is off at source.	
							2. Check for cuts in cable insulation.	Insulation has cut which exposes bare wire.
							3. Check for damaged connectors.	Connector cracked or broken.
						Communications		
6					●	Signal Entrance Panels	Check wire pair or cable connections.	
							1. Check for loose or damaged wire.	
							2. If cable connector is installed, check connector and cable for damage.	
						ADP Subsystem		
7					●	Magnetic Tape Cleaner	Check tape transport for oxide buildup on surface, tape guides and rollers. Clean if necessary:	
							WARNING Isopropyl alcohol is flammable. Do not use near high heat or open flame.	
							1. Dampen a cotton swab or lint-free cloth with isopropyl alcohol.	
							2. Wipe oxide buildup from tape guides and rollers.	

Table 2-3. Preventive Maintenance Checks and Services -- Continued

Item No.	Interval					Item to be Inspected	Procedures Check for and have repaired or adjusted as necessary	Equipment is Not Ready/Available If:
	B	D	A	W	M			
							3. Using vacuum cleaner with soft bristle brush, clean surface of unit and of band blade assembly.	
8					●	Keyboard Display Terminals	Clean display screen using lint-free cloth dampened with window cleaning solution.	
					●		Using dry cotton swab, remove dust from between keys on keyboard.	
					●		Clean surface of terminals using cloth dampened with window cleaning solution.	
9					●	Card Reader/ Punch	Using dry cotton swab, remove dust from between keys on keyboard.	
					●		Clean surface of top cover and pedestal using clean cloth dampened with window cleaning solution.	
10					●	Line Printer Console Printer	Clean surface of both units using clean cloth dampened with window cleaning solution.	
11					●	Tape Drives	Clean dust cover window using clean, lint-free cloth dampened with window cleaning solution.	
							Clean surface and dust cover using clean cloth dampened with window cleaning solution.	
						Auxiliary Equipment		
12					●	Power Plant	Inspect all interconnecting cables for damage to insulation or connectors.	Insulation or connectors damaged.

Section III. OPERATION UNDER USUAL CONDITIONS

2-6. ASSEMBLY AND PREPARATION FOR USE

DAS3 (D/C) is a mobile system. It can be moved from site to site as needed. Under normal conditions, the van can be setup and the system put into operation in about six hours. The site would ordinarily be a preconstructed garrison site and the emplacement crew might consist of three crew members.

During war time or training manuevers the task must be completed in two hours or less. The site could be on rough terrain and the weather conditions could be severe. Teamwork is required. The usual emplacement team or crew for rapid deployment will be made up of six operators and a supervisor. The crew supervisor assigns the tasks and monitors the emplacement activity.

The emplacement and preparation for use procedures in this section have been systematically organized into a crew effort in order to meet the two hour objective safely and efficiently.

2-7. EMPLACEMENT

If tactical requirements include rapid deployment use the instructions in paragraphs 2-8 and 2-9. If rapid deployment is not required, go to paragraph 2-10 for instructions.

a. Supervisor. To prepare your crew for rapid deployment, use the instructions in paragraph 2-8 and complete the master checklist (table 2-3) requirements for each task as indicated on the manloading timeline chart (fig. 2-36).

b. Crew Member. To prepare for rapid deployment, review your crew task assignment list (table 2-4) and study each procedure. Note that you are expected to complete the assigned task within the time allowed. If there are any procedures you don't understand, ask your supervisor to explain them. Do not attempt to complete a task by yourself if it is assigned to two or more crew members. Always get help.

CAUTION

Tasks performed outside the van are dirty. Clean dirty hands and tools before doing inside tasks or damage to equipment can result.

2-8. SUPERVISOR'S PROCEDURE FOR RAPID DEPLOYMENT

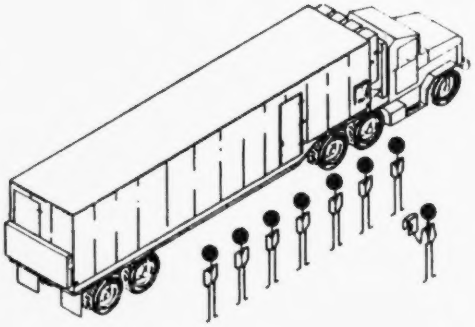
INITIAL SETUP

Materials/Spare Parts
- Pencils

Personnel
- Six (6 operators)

NOTE

This procedure details supervision responsibilities for DAS3 (D/C) emplacement and preparation for use. It is used to assure an orderly and efficient emplacement within a two-hour period.

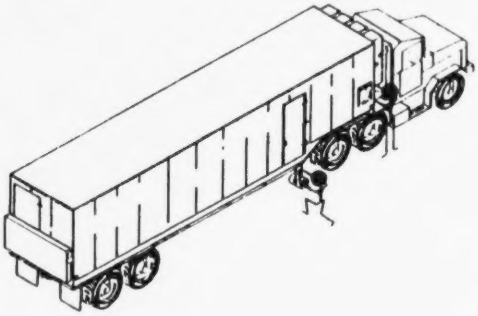


1. Brief the crew selected, on the nature of the assignment.
   - Explain the use of crew task assignment lists and task procedures
   - Review CAUTIONS and WARNINGS
   - Explain the two-hour time requirement and the need for teamwork

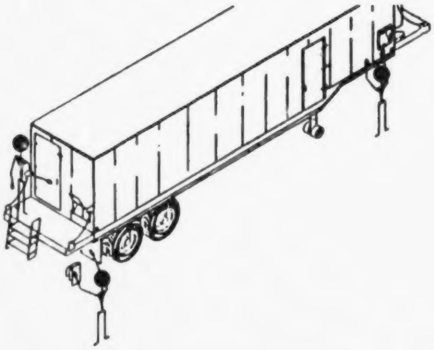
CREW MEMBER	TASK ASSIGNED
1	ALL UNDER A
2	ALL UNDER B
3	ALL UNDER C
4	ALL UNDER D
5	ALL UNDER E
6	ALL UNDER F

2. Assign crew members tasks A thru F in the order outlined and within the time frames specified in Table 2-4.

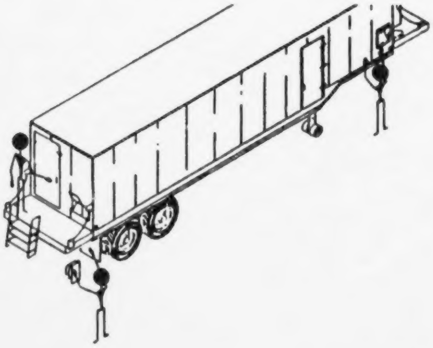
2-8. SUPERVISOR'S PROCEDURE FOR RAPID DEPLOYMENT (CONT)



3. When van is parked in the selected site, tell crew members A and B to begin their task assignments.



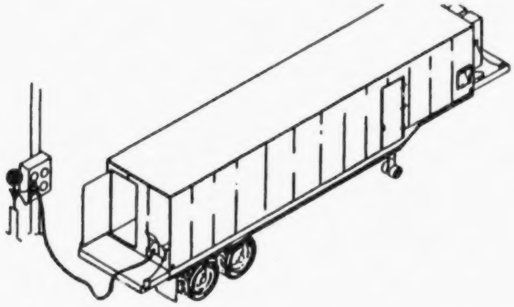
4. While van is being unhitched from towing vehicle, tell crew members C, D, E, and F to begin their task assignments.



5. Monitor emplacement activity:

- Make sure each crew member is doing each task in the order given on his/her task assignment list using instructions in this manual
- Check off completed tasks on your master checklist
- If any crew member is falling behind, ask an available crew member to help out

2-8. SUPERVISOR'S PROCEDURE FOR RAPID DEPLOYMENT (CONT)



6. Begin ac power hookup preparation:

- If power plants are to be used, tell crew members E and F to begin their task assignments
- If commercial power is to be used, make sure base electrician knows DAS3 (D/C) power requirements (para 1-18)

NOTE

Under this method of emplacement, all crew members are working on their assigned tasks at the same time. If tasks are completed within the time allowed, the operation will go smoothly. However, if any crew member falls behind, it will affect the entire operation. If conditions require, ask crew members to report back to you after they complete each task.

The manloading chart (figure 2-34) gives you an overview of this operation.

Time Allowed	Task Completed (✓)
PHASE I	
15 min	(✓)
5 min	(✓)
5 min	(✓)
5 min	(✓)
PHASE II	

7. When all tasks in phase I are complete (as shown), start phase II. Continue this way until all phases are complete.

PHASE I

Table 2-4. Master Checklist for Rapid Deployment

Crew Assign	Task Title	Para.	Time Allowed	Task Completed (✓)
	PHASE I			
A1, B1	Unhitch van from towing vehicle	2-11	10 min	( )
A2, B2	Lower leveling jacks; level van	2-12, 2-14	20 min	( )
A3, B3	Lower rear platform; install boarding ladders	2-13	10 min	( )
C1, D1	Ground van	2-23	10 min	( )
C2, D2	Unstow and connect van power cables	2-21	15 min	( )
C3, D3	Connect van adapter cables to generator switch box	2-22	15 min	( )
A4, B4	Unstow folding ladder; raise air conditioner flaps, remove air conditioner drain plugs	2-15 2-16 2-17	15 min	( )
E1, F1	Prepare power plant for operation	2-18	10 min	( )
E2, F2	Ground Power Plant	2-19	20 min	( )
E3, F3	Unstow and connect power plant cables	2-20	40 min	( )
	PHASE II			
E4, F4	Start power plant	2-29 2-30	10 min	( )
E5	Power ON van; apply utility and tech power	2-31, 2-32, 2-33	10 min	( )
F5	Stabilize environment	2-34	15 min	( )
	PHASE III			
A5, B5	Install signal lines	2-43	30 min	( )
E6	Prepare CPU for operation	2-36	10 min	( )

Table 2-4. Master Checklist for Rapid Deployment -- Continued

Crew Assign	Task Title	Para.	Time Allowed	Task Completed (✓)
E7	Prepare tape drives for operation	2-37	10 min	( )
F6	Prepare console printer for operation	2-38	10 min	( )
F7	Prepare disk drives for operation	2-40	25 min	( )
E8	Prepare line printer for operation	2-39	20 min	( )
F8	Prepare card reader/punch for operation	2-42	20 min	( )
C4	Setup chairs; prepare emergency light for operation; unstrap tape reels and disk packs/open storage cabinets	2-35, 2-44, 2-45	20 min	( )
	PHASE IV			
A6,B6,D4	Start up system, check system for operational readiness	2-47, 2-50	30 min	( )
F9	Check card reader/punch for operational readiness	*	20 min	( )
	PHASE V			
D5	Monitor stabilization of van environment	2-34	60-140 min	( )

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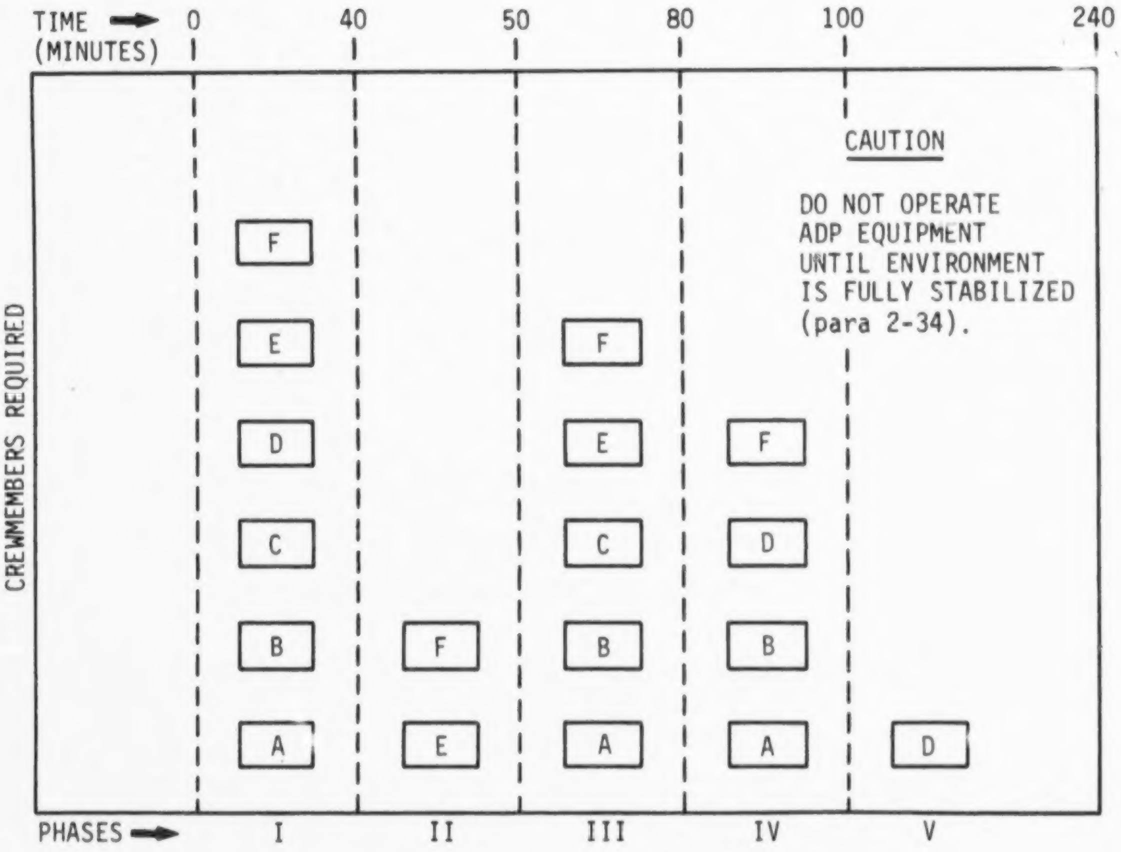
* Refer to TM 11-7040-200-10



CAUTION

DO NOT OPERATE ADP EQUIPMENT UNTIL ENVIRONMENT IS FULLY STABILIZED (para 2-34).

Figure 2-34. Rapid Deployment Manloading Chart

2-9. CREW TASK ASSIGNMENTS FOR RAPID DEPLOYMENT

As a crew member selected for DAS3 (D/C) emplacement and preparation for use, you must review the crew task assignment list (table 2-5) assigned by the crew supervisor.

Your crew task assignment list tells you the task sequence or order you must follow during emplacement, the paragraph number where the task instructions appear in this manual, and the time you have to complete each task. Look up each paragraph and read through the instructions given. Make sure you understand how the task is done. Read carefully the CAUTIONS and WARNINGS given in the instructions.

2-10. NON-RAPID DEPLOYMENT

If rapid deployment is not required, only three crew members are required for emplacement. Follow the instructions in paragraphs 2-11 thru 2-51 in the order given.

Table 2-5. Crew Task Assignment List

Task Sequence	Task Title	Para.	Time Allowed
CREW MEMBER A			CREW MEMBER A
1	Unhitch van from towing vehicle	2-11	10 min
2	Lower leveling jacks; level van	2-12, 2-14	20 min
3	Lower rear platform; install boarding ladders	2-13	10 min
4	Unstow folding ladder; raise air conditioner flaps; remove air conditioner drain plugs	2-15, 2-16 2-17	15 min
5	Install signal lines	2-43	30 min
6	Check system for operational readiness	2-50	30 min
CREW MEMBER B			CREW MEMBER B
1	Unhitch van from towing vehicle	2-11	10 min
2	Lower leveling jacks; level van	2-12, 2-14	20 min
3	Lower rear platform; install boarding ladders	2-13	10 min
4	Unstow folding ladder; raise air conditioner flaps; remove air conditioner drain plugs	2-15, 2-16 2-17	15 min
5	Install signal lines	2-43	30 min
6	Start up ADP subsystem, begin operational checks	2-47, 2-50	30 min

Table 2-5. Crew Task Assignment List -- Continued

Task Sequence	Task Title	Para.	Time Allowed
CREW MEMBER C			CREW MEMBER C
1	Ground van	2-23	10 min
2	Unstow and connect van power cables	2-21	15 min
3	Connect van adapter cables to generator switch box	2-22	15 min
4	Set up chairs; prepare emergency light for operation, unstrap tape reels and disk packs/open storage cabinets	2-35, 2-44, 2-45	20 min
CREW MEMBER D			CREW MEMBER D
1	Ground van	2-23	10 min
2	Unstow and connect van power cables	2-21	15 min
3	Connect van adapter cables to generator switch box	2-22	15 min
4	Start up system	2-47	30 min
5	Monitor stabilization of van environment	2-34	60-140 min

Table 2-5. Crew Task Assignment List -- Continued

Task Sequence	Task Title	Para.	Time Allowed
CREW MEMBER E			CREW MEMBER E
1	Prepare power plant for operation	2-18	10 min
2	Ground Power Plant	2-19	20 min
3	Unstow and connect power plant cables	2-21	40 min
4	Start power plant	2-29, 2-30	10 min
5	Power ON van; apply utility and tech power	2-31, 2-32, 2-33	10 min
6	Prepare CPU for operation	2-36	10 min
7	Prepare tape drives for operation	2-37	10 min
8	Prepare line printer for operation	2-39	20 min
CREW MEMBER F			CREW MEMBER F
1	Prepare power plant for operation	2-18	10 min
2	Ground power plant	2-19	20 min
3	Unstow and connect power plant cables	2-21	40 min
4	Start power plant	2-29, 2-30	10 min
5	Start up environmental subsystem	2-34	30 min
6	Prepare console printer for operation	2-38	10 min
7	Prepare disk drives for operation	2-40	25 min
8	Prepare card reader/punch for operation	*	20 min
9	Check card reader/punch for operational readiness	2-50	20 min

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* Refer to TM 11-7040-200-10

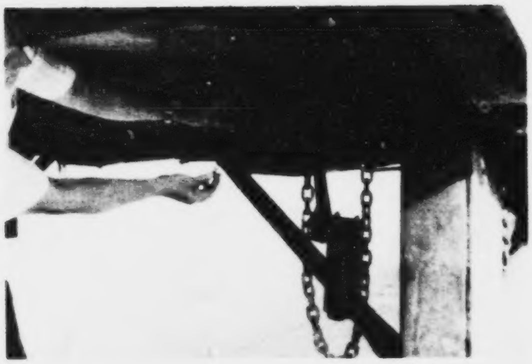
2-11. UNHITCH VAN FROM TOWING VEHICLE

INITIAL SETUP

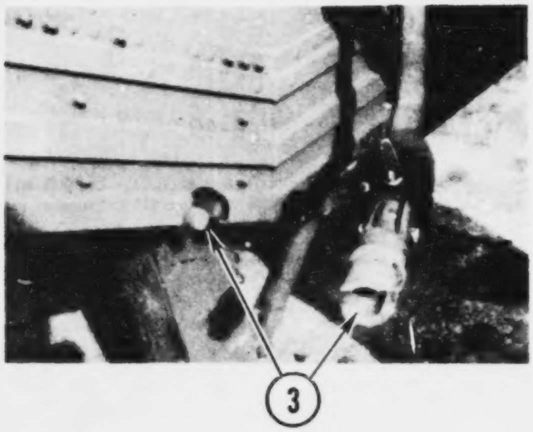
Personnel Required
- Two

NOTE

You must lower the landing gear before van is unhitched from towing vehicle. There are two landing gear. Use steps 1 thru 9 to lower them.

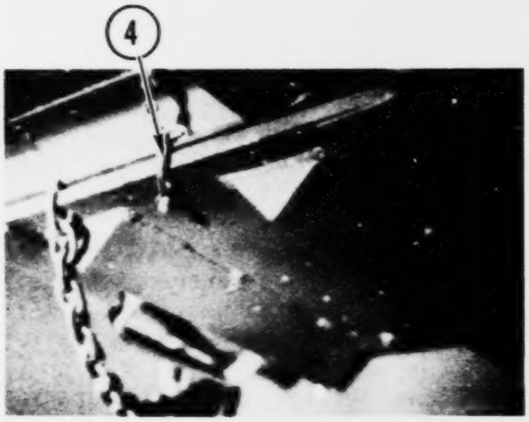


1. Unfasten chain connector holding crank in place.
2. Pull crank free.

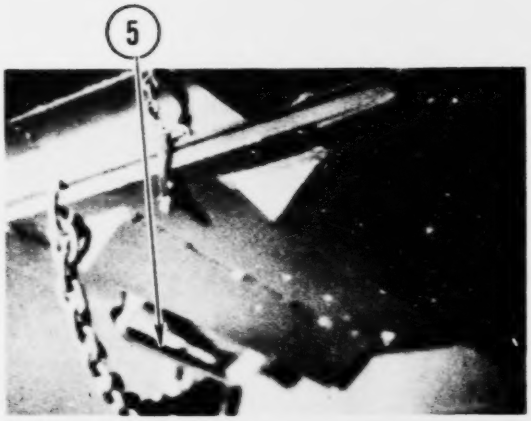


3. Insert end of crank over pin.

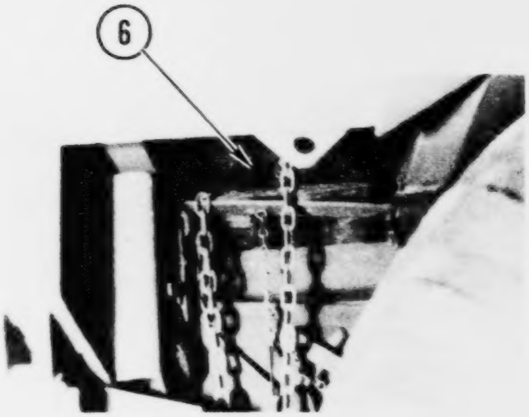
2-11. UNHITCH VAN FROM TOWING VEHICLE (CONT)



4. Disconnect clip and pull pin straight down holding sand plate to shelf. Let clip and pin hang.

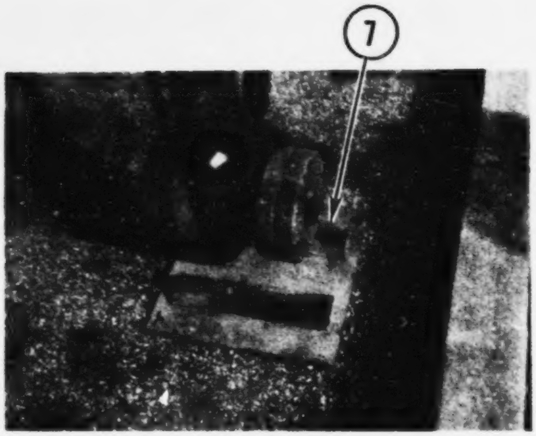


5. Lift sand plate, chain from hook, lift plate from shelf and lower plate to ground.



6. Locate chocks on shelf behind rear wheels.
   - Remove retaining pin from metal rod under rear shelf
   - Raise rod and swing it out of your way
   - Remove locking clip from chocks
   - Unwind chain
   - Remove chocks and place under rear wheels
   - Replace retaining bar and pin

2-11. UNHITCH VAN FROM TOWING VEHICLE (CONT)

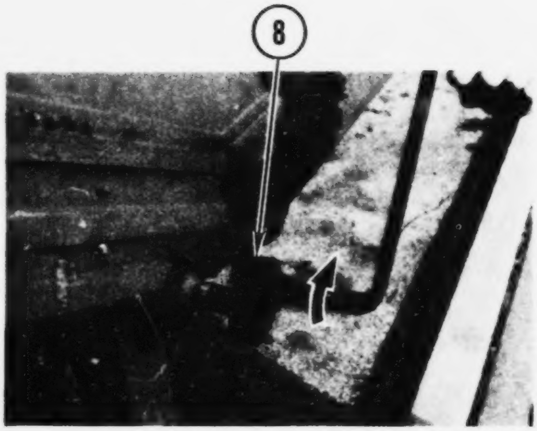


7. Place plate beneath landing gear. Block rear van wheels with wheel chocks or blocks. Place one chock in front of a wheel; place the other behind a wheel.

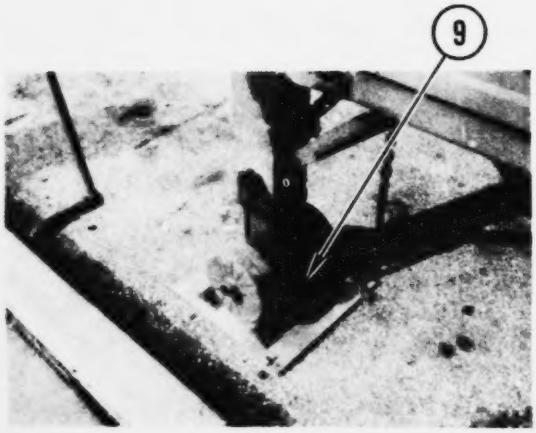
NOTE

Crank works in either low or high gear. In low gear, crank is easier to turn. In high gear, crank is difficult to turn but works faster.

- To select low gear, push crank in as far as it will go
- To select high gear, push crank in as far as it will go, give crank half turn, and pull it back toward you



8. To raise nose of van, turn crank as shown.

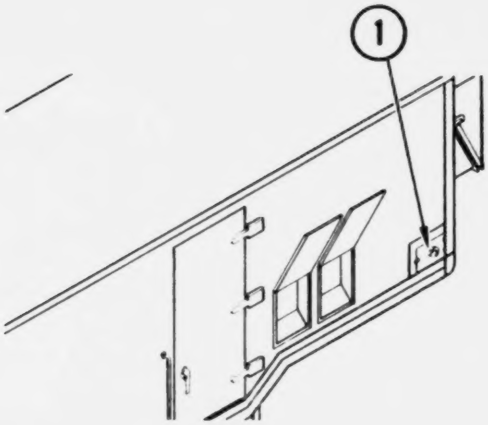


9. Landing gear should sit securely in plate as shown.

0. Before the towing vehicle is unhitched and pulled away, verify that driver has:

- Disconnected air brake hoses from towing vehicle
- Disconnected 24 volt power supply cable from van
- Released kingpin lock on fifth wheel

2-12. LOWER LEVELING JACKS



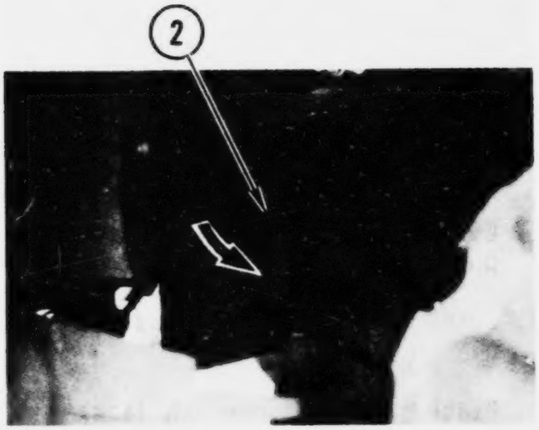
NOTE

You need a jack handle to operate the leveling jacks. Handles (2 ea) are stored in the storage area beneath the air conditioners.

1. Get jack handles from storage. Lay them on ground at rear of van.

WARNING

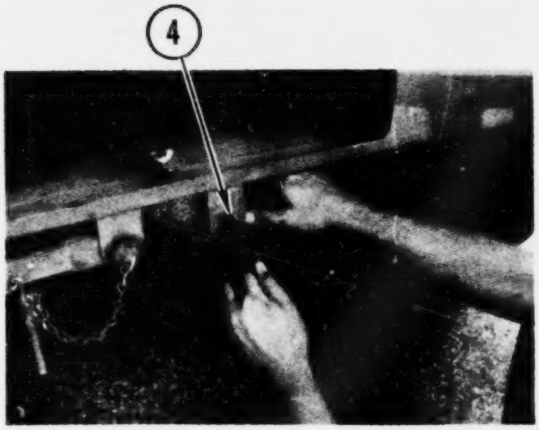
Do not do steps 2 thru 13 while landing gear is being raised or lowered. Landing gear can shift position of van and cause jacks to pull away.



2. Go to outside rear tire. Look straight in. Locate jack shoe. Turn handle to release shoe.
3. Pull shoe off post. Put shoe near jack handle.

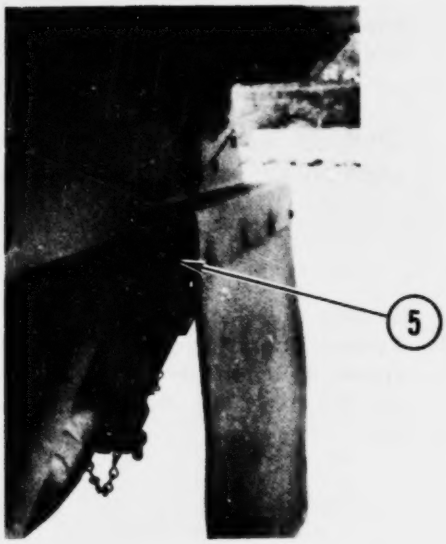
CAUTION

When first jack pin is removed, jack arm may touch air brake connector. If this happens, do not force jack down. It will clear connector when second pin is removed.

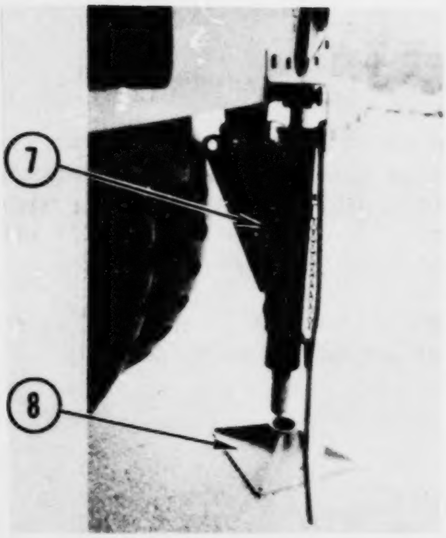


4. Remove first pin. Jack will swing about a quarter inch down.

2-12. LOWER LEVELING JACKS (CONT)



5. While holding jack in place, remove second pin. It is located directly behind mud flap.

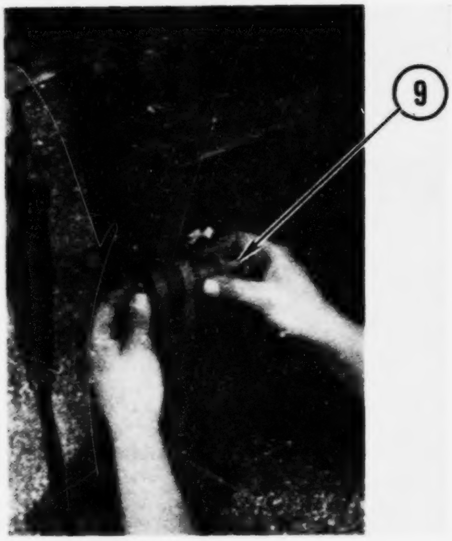


6. Let jack swing down into vertical position.

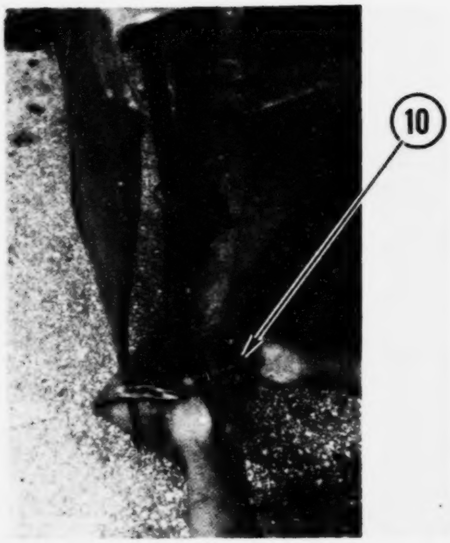
7. Swing long brace into position and pin in place.

8. Place jack shoe beneath jack.

2-12. LOWER LEVELING JACKS (CONT)

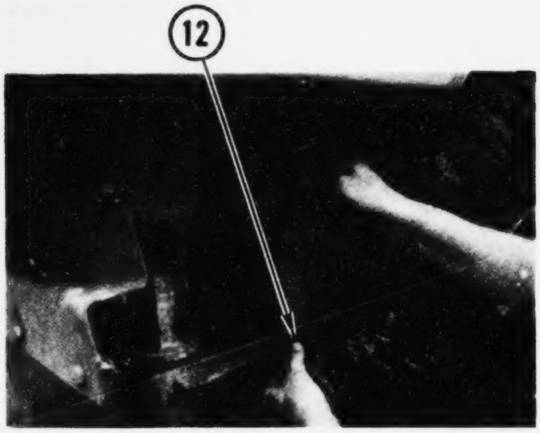


9. Remove pin from top of short brace.



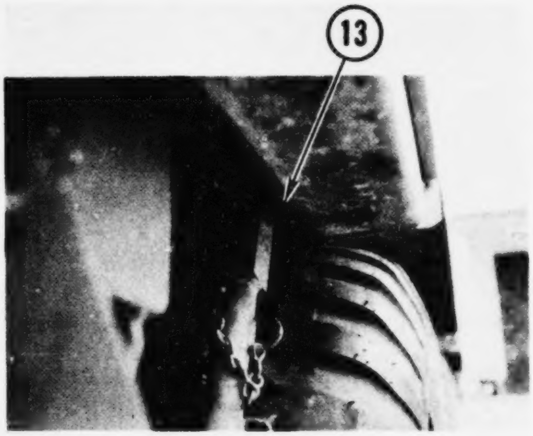
10. Remove pin from bottom of short brace.

2-12. LOWER LEVELING JACKS (CONT)

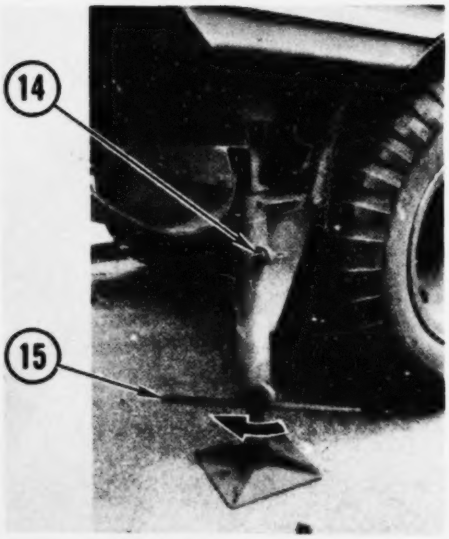


11. Fix brace in place on gusset.

12. Insert pin.



13. Fix other end in place on van. Insert pin.



14. Store lower pin in upper hole in jack.

15. Insert jack handle.

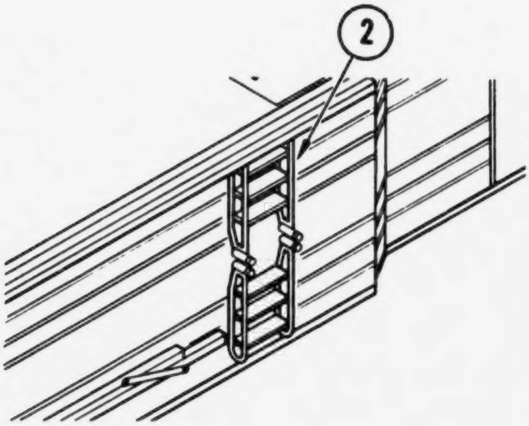
NOTE

Do not jack at this time. Jacking is part of van leveling (para 2-14).

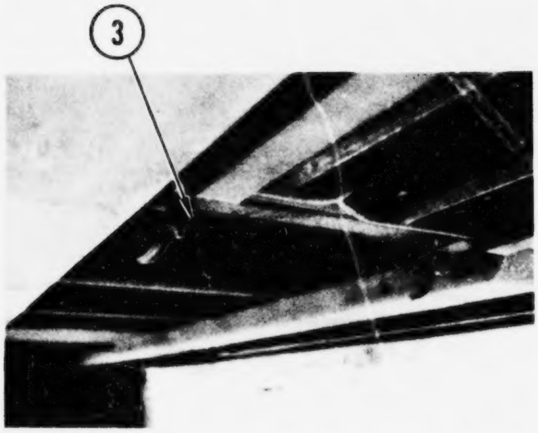
2-13. LOWER REAR PLATFORM/INSTALL BOARDING LADDERS

INITIAL SETUP

Personnel Required
- Two

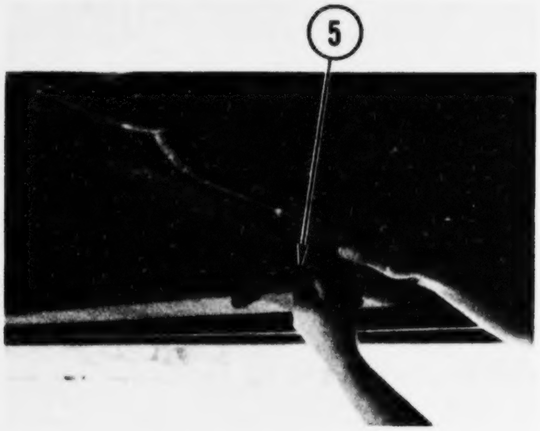


1. Look underneath van in area of side door.
2. Find two boarding ladders.



3. Under one ladder, turn off handle nut.
4. Pull away bar.

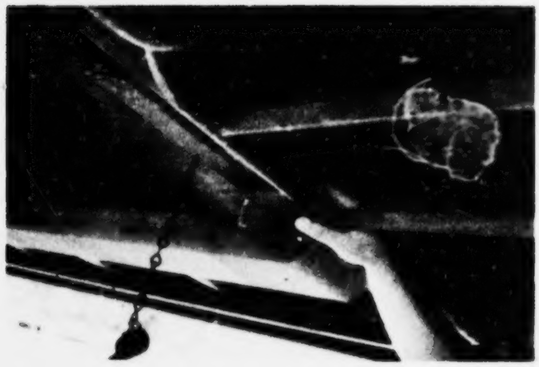
2-13. LOWER REAR PLATFORM/INSTALL BOARDING LADDERS (CONT)



WARNING

Boarding ladders can fall when you do step 5. Do not do step 5 alone.

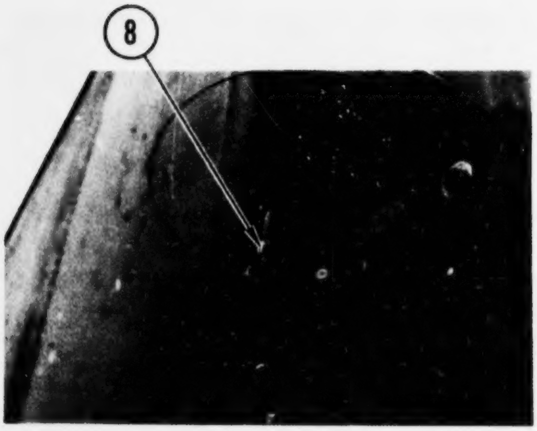
5. While your partner holds boarding ladders in place, turn off handle nut.



6. Pull away bar.
7. With your partner, remove ladders from beneath van.

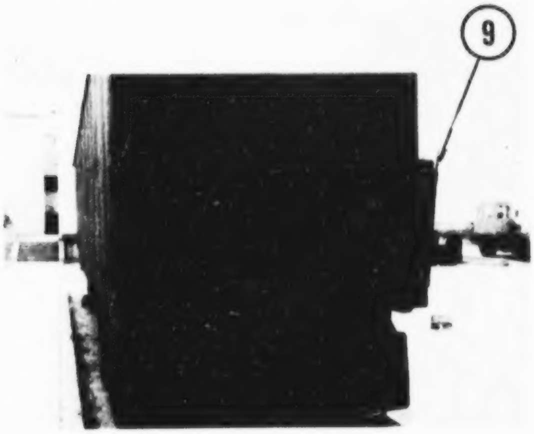
NOTE

Ladder with handrail sockets is for rear platform. Ladder without sockets is for side door.



8. At rear of van, remove locking pin on one side of platform.

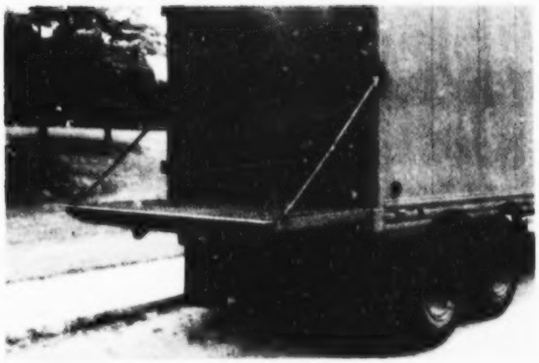
2-13. LOWER REAR PLATFORM/INSTALL BOARDING LADDERS (CONT)



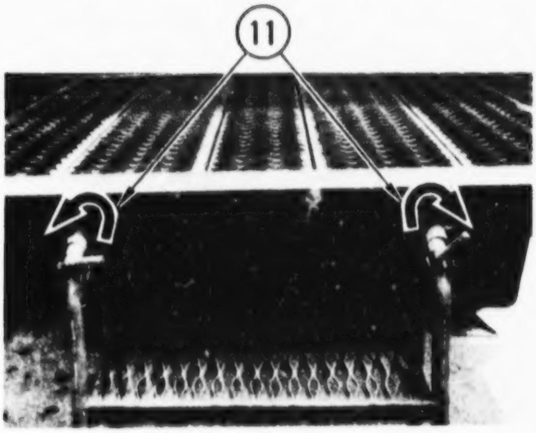
WARNING

Do not stand beneath platform. Grip platform from side.

9. Remove pin from other side of platform.

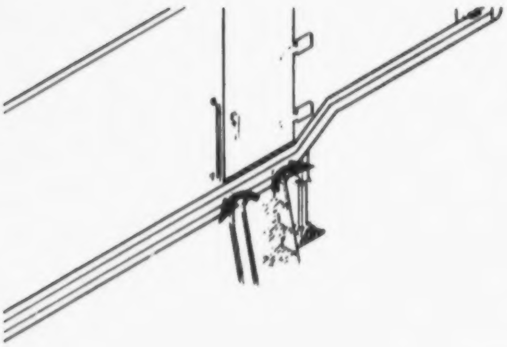


10. With partner, lower rear platform.



11. Attach rear boarding ladder. Turn handles as shown.
12. Get handrail from bracket on rear door and attach to rear boarding ladder.

2-13. LOWER REAR PLATFORM/INSTALL BOARDING LADDERS (CONT)



13. Attach side ladder. Turn handles as shown.

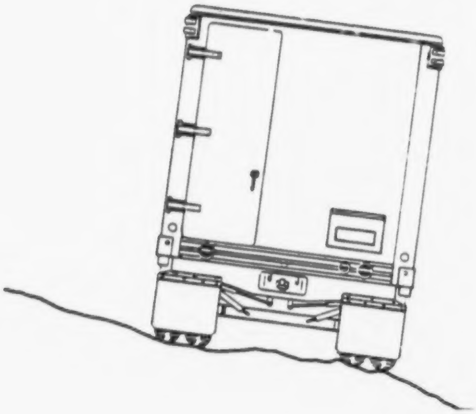
2-14. LEVEL VAN

INITIAL SETUP

Common Tools	Personnel Required
• Carpenter's Level	• Two

NOTE

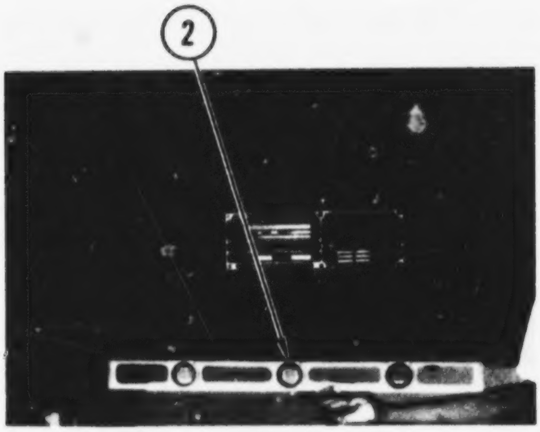
Van must be level in order for disk drives to work properly. Enter van from rear door and get carpenter's level from spare parts cabinet. You will need level to perform this task.



1. Look at rear of van. Find highground side (if you can't find it, start with roadside of van).

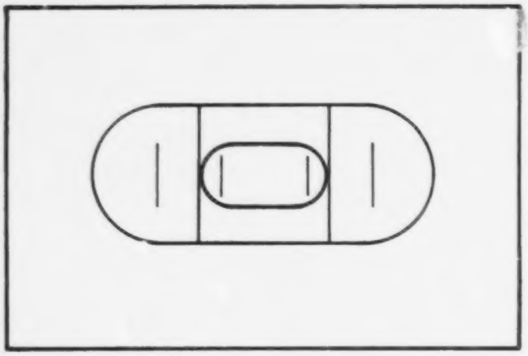
NOTE

If van appears too high or too low at front end, adjust landing gear so that van appears level from front to back. Then go to step 2.



At highground side of van, hold carpenter's level up against underside of front side rail.

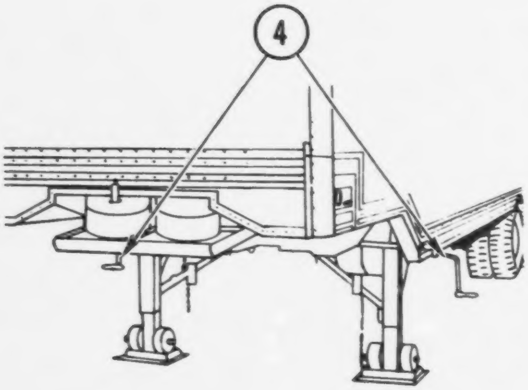
2-14. LEVEL VAN (CONT)



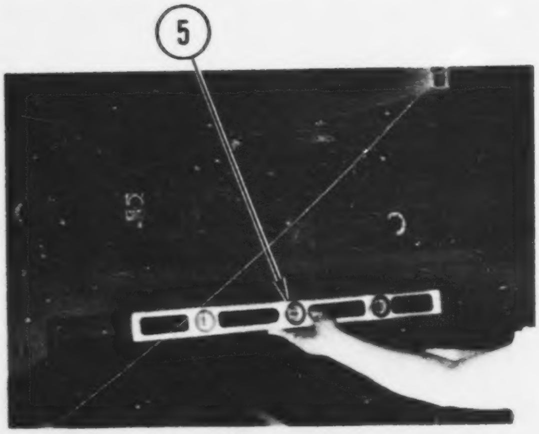
3. Look at bubble in carpenters level.
   - If bubble rests in position shown, go to step 5
   - If it doesn't go to step 4

CAUTION

Rear wheels of high-ground side of van should remain on ground. Do not continue to crank up the front of the van if rear wheels are lifting off ground. Damage to van may occur.

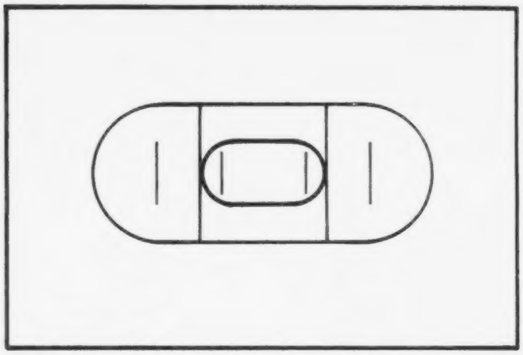


4. Find cranks. Select crank located on the side you are leveling. Put crank in low gear. Turn handle to raise or lower van until bubble rests in position shown in step 3. If wheels start to lift off ground and van is still not level, return landing gear to starting point and go back to step 1.



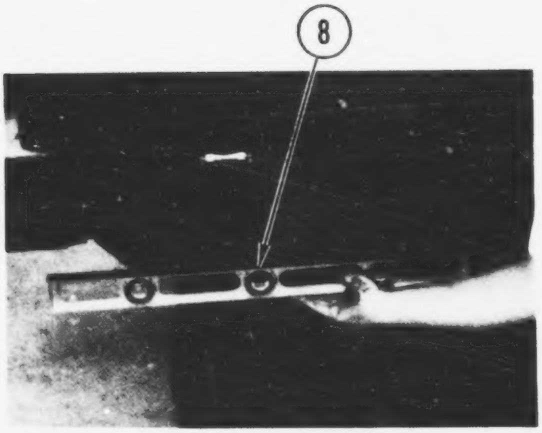
5. Hold carpenter's level up against underside of front crossrail. Look at bubble.

2-14. LEVEL VAN (CONT)

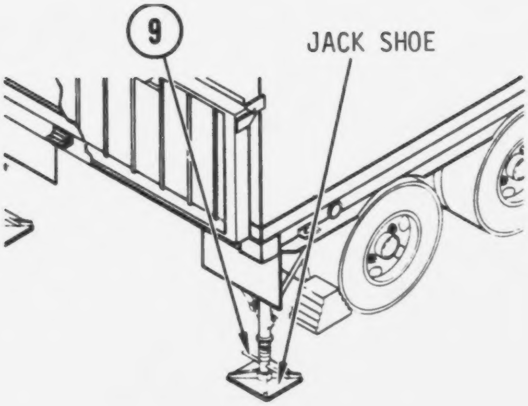


6. If bubble rests in this position, go to step 8. If it doesn't go to step 7.

7. Go to opposite side of van and turn crank until bubble rests in position shown in step 6.



8. Go to rear of side you just cranked. Hold carpenter's level up against underside of side rail.

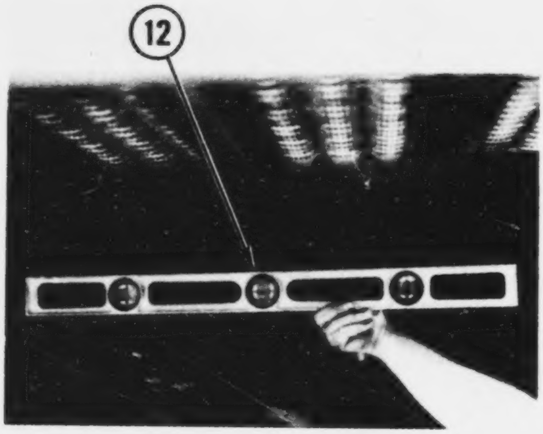


9. Lower rear jack and seat shoe. Turn rear jack handle until this side of van is level (bubble in position shown in step 6).

10. Now go to rear corner of van you started with in step 7.

11. Lower rear jack and seat shoe. Turn jack handle until jack is tight and shoe will not move. (Do not raise van. Rear wheels should still be resting on ground.)

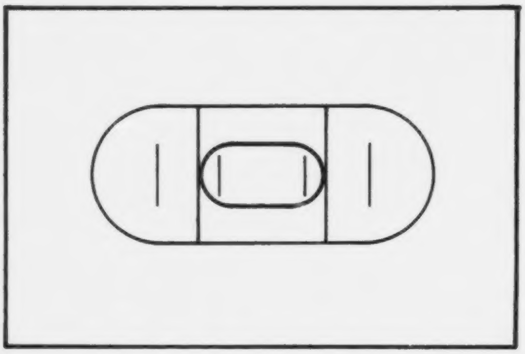
2-14. LEVEL VAN (CONT)



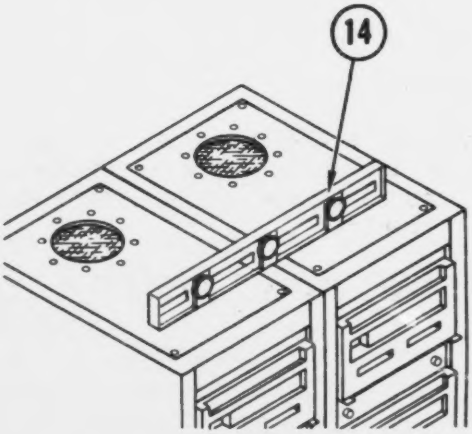
12. Hold carpenter's level up against underside of rear frame rail.

NOTE

Van level is okay if bubble is between leveling limit marks.



13. Bubble should rest in this position.
    - If it does, go to step 14
    - If it does not, go back to step 1 and repeat whole task
14. Go inside van. Place carpenter's level on top of disk drive cabinet. Verify that van is level in all directions.
15. Stow landing gear cranks.
16. Stow leveling jacks handles.



CAUTION

If any wheels are not touching ground when you are finished leveling, place blocks under them to prevent the van from wobbling. Van must be steady and level to prevent disk drive head crash.

17. Recheck the van level after first eight hours of operation. Settlement may occur.

2-15. UNSTOW FOLDING LADDER

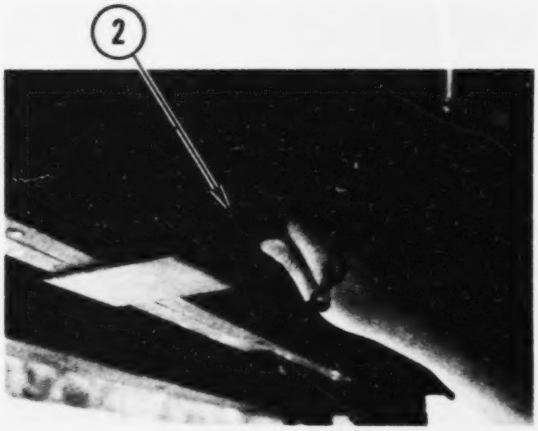
INITIAL SETUP

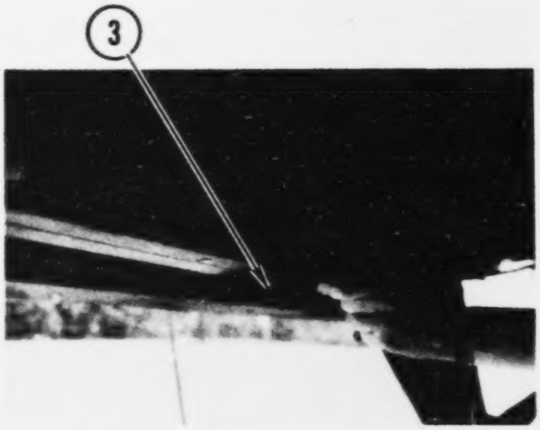
Personnel Required
- Two

NOTE

It takes two persons to remove ladder.

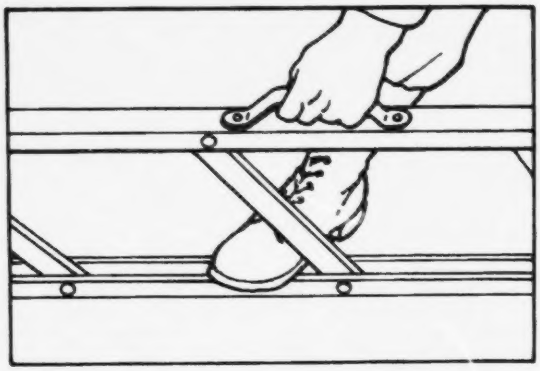
1. Both crew members: Locate 12 ft. folding ladder. Each of you should take one end of ladder.
2. First crew member: Pull pin from clamp at one end of ladder.



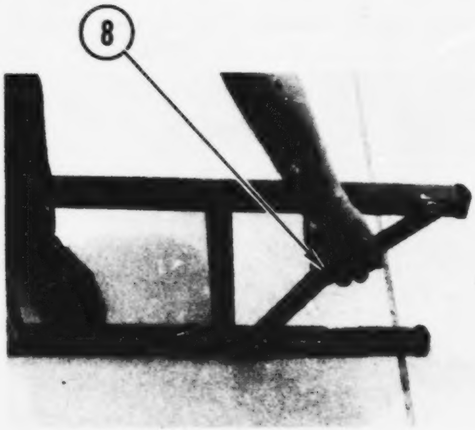


3. Pull away clamp.
4. Second Crew member: Pull pin from clamp while first crew member supports one end at other end of ladder.
5. Together, pull down ladder.

2-15. UNSTOW FOLDING LADDER (CONT)



6. Lay ladder on ground.
7. Pull up on handle until ladder comes up.



8. Lock hinge in place.
9. Carry ladder to front of van. Place against second air conditioner.

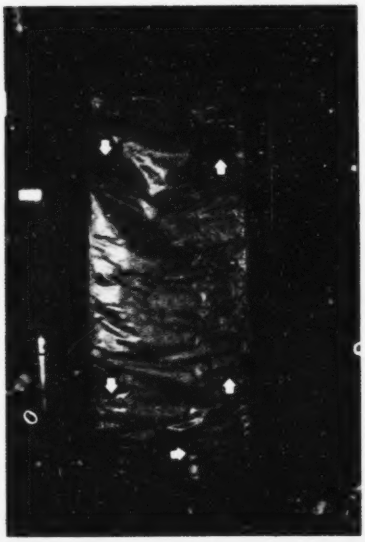
2-16. RAISE AIR CONDITIONER COVER FLAPS

INITIAL SETUP

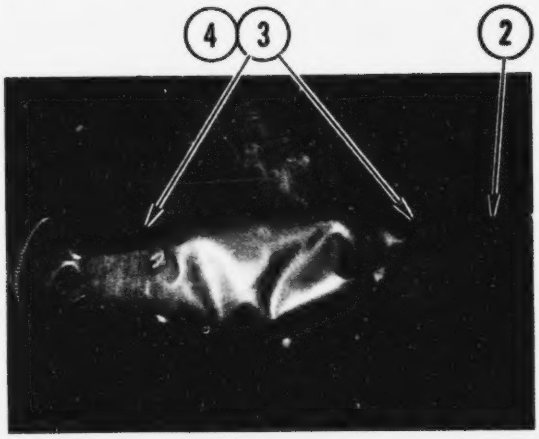
Support Equipment	Personnel Required
● 12 foot folding ladder	● Two

NOTE

Use van folding ladder (para 2-15) to access air conditioner covers. Have your partner hold ladder steady.



1. Unzip each flap, as shown.



2. Roll flap tightly.
3. Pull straps up and over flap.
4. Close captive fasteners.

2-17. REMOVE AIR CONDITIONER DRAIN PLUGS; RESET CIRCUIT BREAKER

INITIAL SETUP

Common Tools
- Tool kit
- Hex key allen set, decimal

Materials/Spare Parts
- Storage bag for drain plugs

Support Equipment
- 12 foot folding ladder

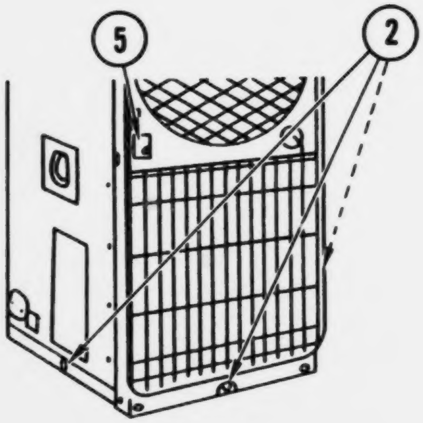
NOTE

Use van folding ladder (para 2-15) to access air conditioners. Follow these steps to remove drain plugs from any of them and to reset circuit breaker.

1. Raise cover flaps (para 2-16).

NOTE

Each air conditioner has three drain plugs. One is in front. One is on left side, the other on right side.



2. Using 3/8 inch hex key wrench, remove drain plugs.
3. Remove any material blocking drain holes.
4. Stow plugs in van storage.
5. Pull, then push in circuit breaker knob to reset it.
6. Stow folding ladder (para 2-96).

2-18. PREPARE POWER PLANT FOR OPERATION

INITIAL SETUP

Common Tools	Personnel Required
• Tool kit	• Two

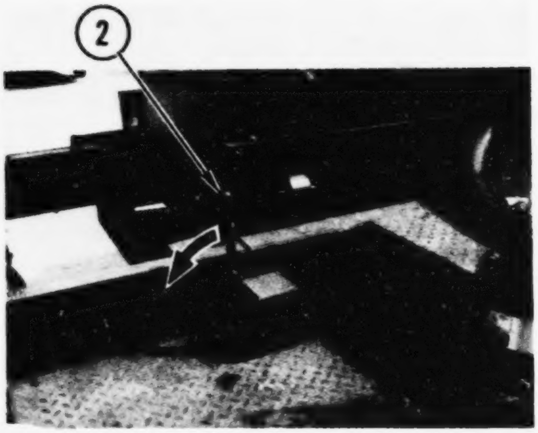
NOTE

The power plant consists of two trailer-mounted generator units. Follow these steps to prepare either for operation.

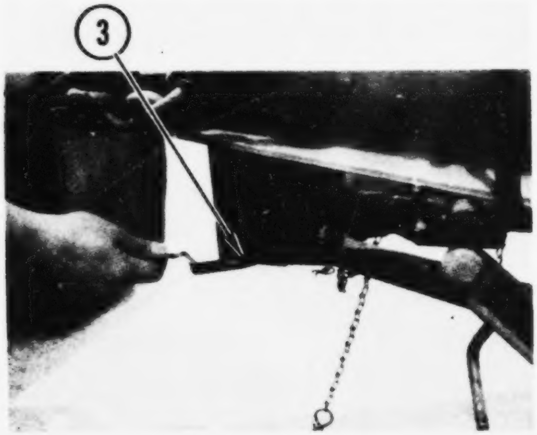
1. Make sure driver has positioned generator unit in correct place.

NOTE

Generators must be no more than four feet apart for interconnection.

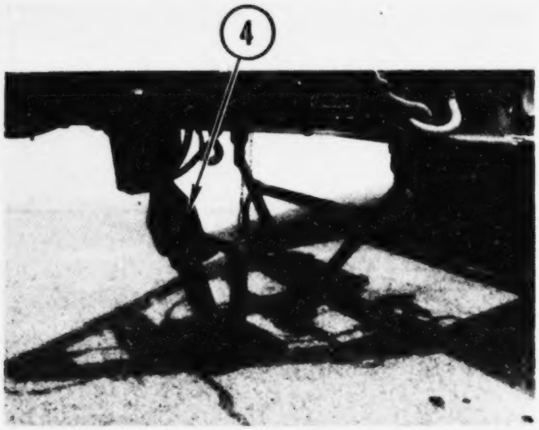


2. Pull down on brake handles.

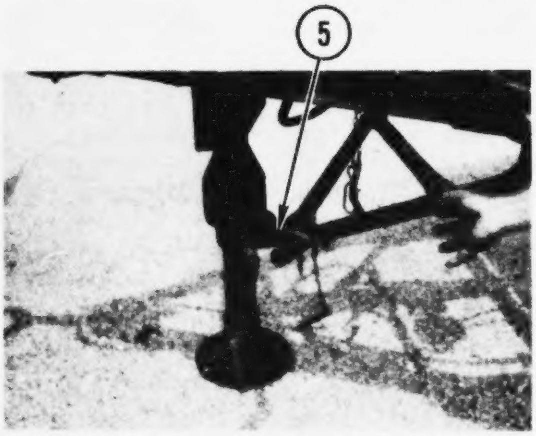


3. At front of trailer, free safety clip and pull out locking pin.

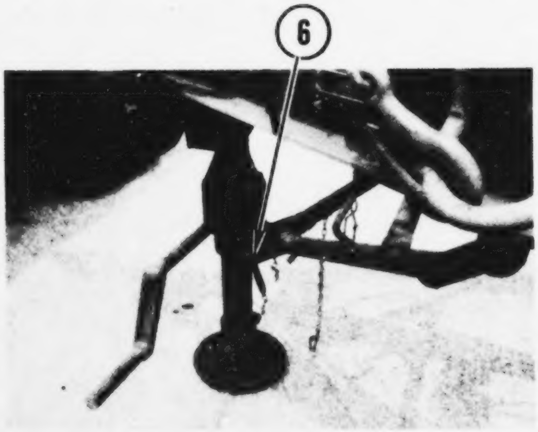
2-18. PREPARE POWER PLANT FOR OPERATION (CONT)



4. Pull down leg.

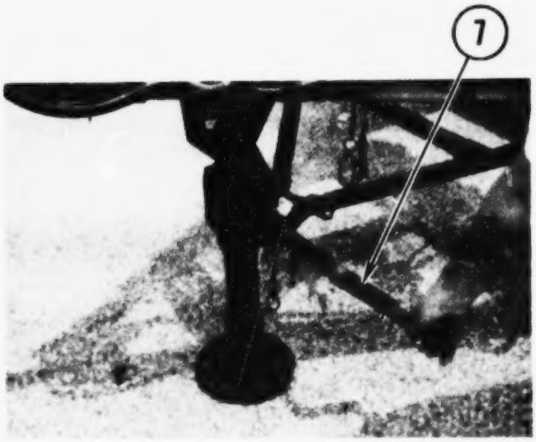


5. Line up holes.

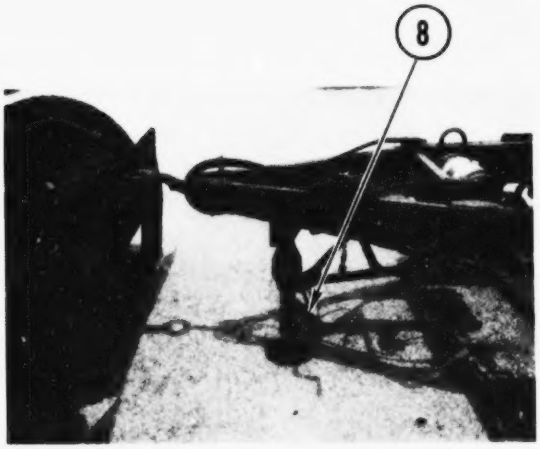


6. Insert locking pin. Attach safety clip.

2-18. PREPARE POWER PLANT FOR OPERATION (CONT)



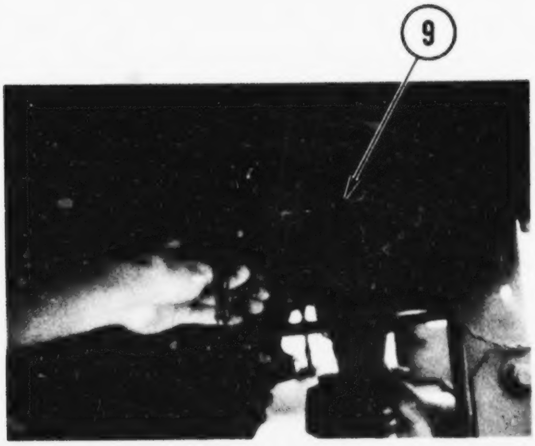
7. Turn crank as shown until shoe sits securely on ground.



8. To raise tongue off towing hook, use crank. Unhitch towing vehicle.

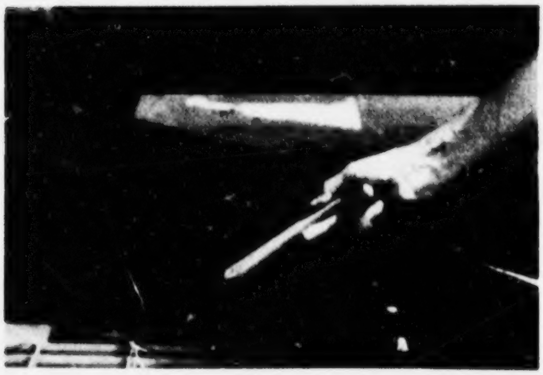
NOTE

There are two jacks. Follow steps 9 thru 13 to lower either of them.



9. At rear of generator unit, remove safety clip. Pull out locking pin.

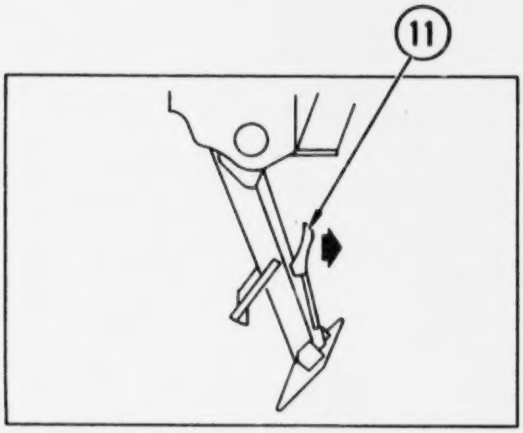
2-18. PREPARE POWER PLANT FOR OPERATION (CONT)



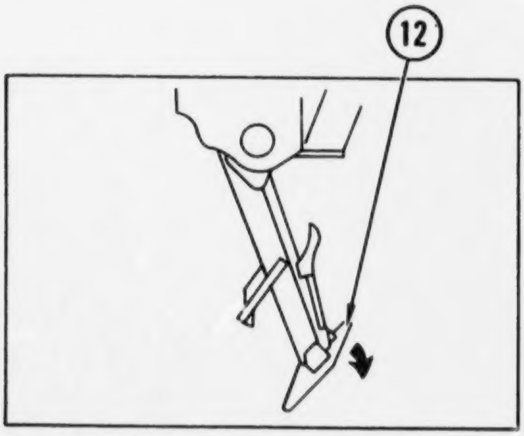
10. Lower jack so locking pin holes line up. Stabilizing holes are located on top of jack. Push in locking pin. Attach safety clip.

WARNING

Hold base of leveling jack securely when you pull release latch. Jack is spring loaded and will snap back into its housing when latch is released.



11. Pull out latch.

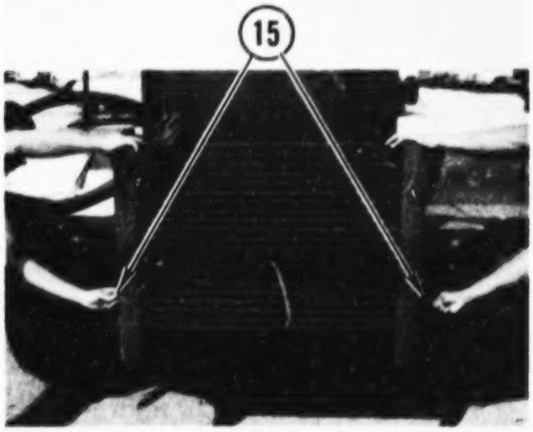


12. While holding latch out, push down on shoe until it sits firmly on ground.

13. Let go of latch.

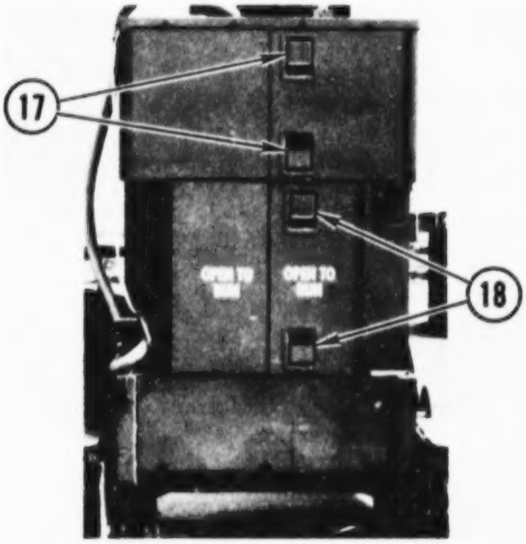
14. Repeat steps 9 thru 13 for other jack.

2-18. PREPARE POWER PLANT FOR OPERATION (CONT)



15. With partner, remove locking pins at each end of platform.

16. Lower platform.

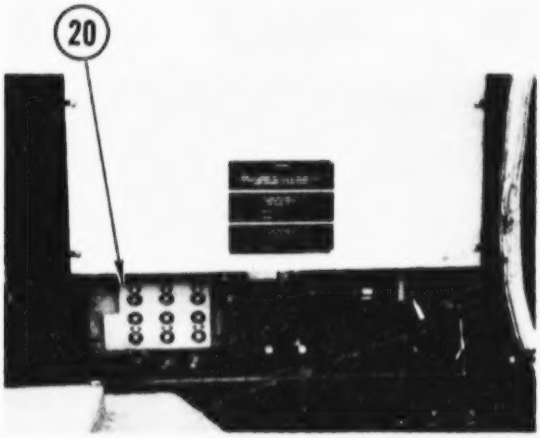


17. Open control panel doors. Engage locking levers.

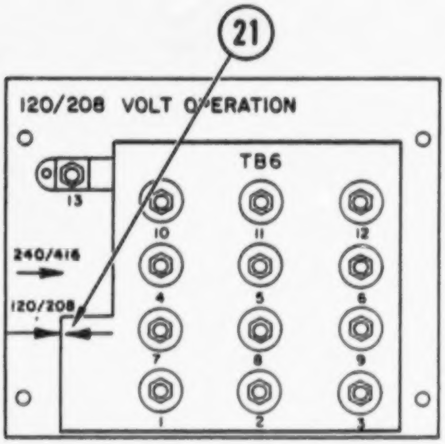
18. Open generator vent doors. Engage locking levers.

19. Open rear roadside door. Engage latch hook.

20. Find voltage reconnection board.



2-18. PREPARE POWER PLANT FOR OPERATION (CONT)


21
120/208 VOLT OPERATION
TB6
13
10
11
12
240/416
4
5
6
120/208
7
8
9
1
2
3

21. Compare board to drawing. Arrow should point to 120/208. If it does, task is complete. If it doesn't, remove 12 mounting nuts, move the board (TB6) until the two arrows are in line as shown.

22. Install and tighten 12 mounting nuts.

2-19. GROUND POWER PLANT

INITIAL SETUP

Common Tools	Materials/Spare Parts
- Tool kit - Sledge hammer	- 3 ground rod sections - Ground cable and clamp - Driving stud and 2 couplings - Switch box ground cable with terminal

WARNING

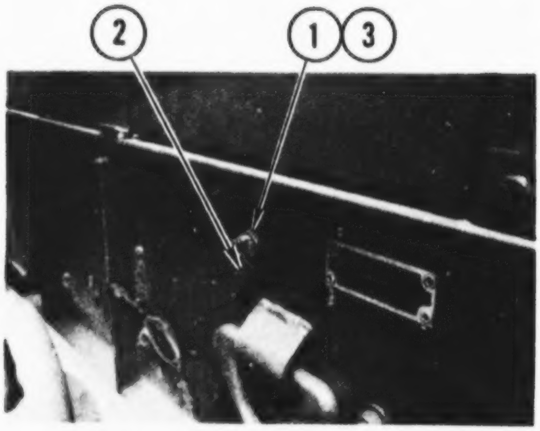
Use this procedure only under usual operating conditions. Refer to Technical Circular TC 11-6 for grounding procedures under unusual operating conditions.

Electrocution may result if task is attempted while generator unit is operating.

NOTE

There are two generator units. Follow these steps to ground both of them.

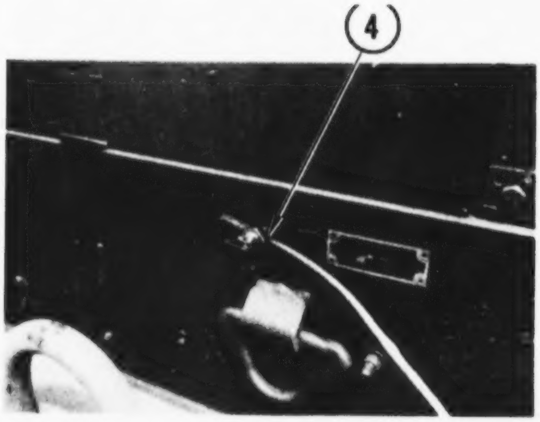
1. Locate ground stud on side of generator unit.
2. Pull up on pin until it points straight out.
3. Loosen nut.



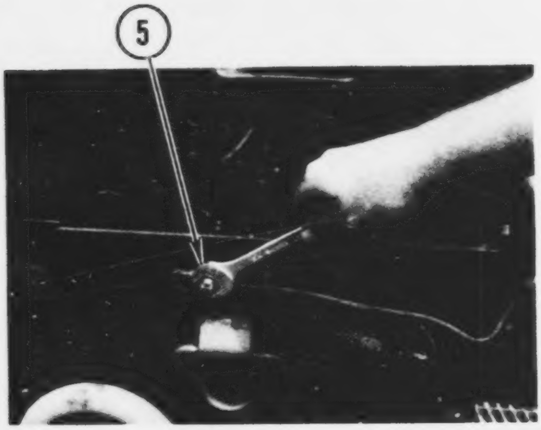
NOTE

Ground rods and cables are stored in box next to curbside brake handle.

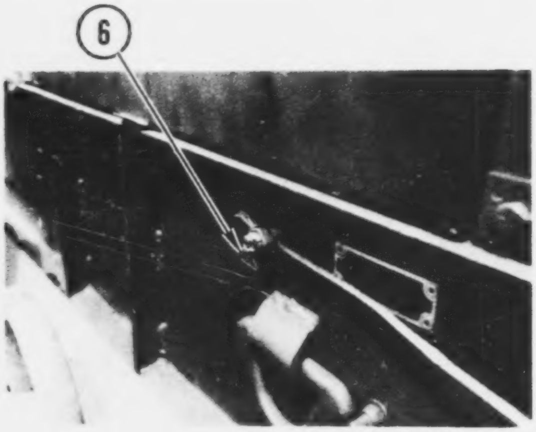
4. Insert ground cable into slot.



2-19. GROUND POWER PLANT (CONT)



5. Tighten nut.



6. Close locking pin.

CAUTION

If driving stud does not seat on ground rod, coupling will be damaged.

7. Locate section of ground rod with one pointed end. Put coupling and driving stud on non-pointed end of ground rod. Make sure stud seats firmly on end of rod.

2-19. GROUND POWER PLANT (CONT)

8. Drive rod into ground until coupling is just above surface.
9. Remove driving stud from coupling.

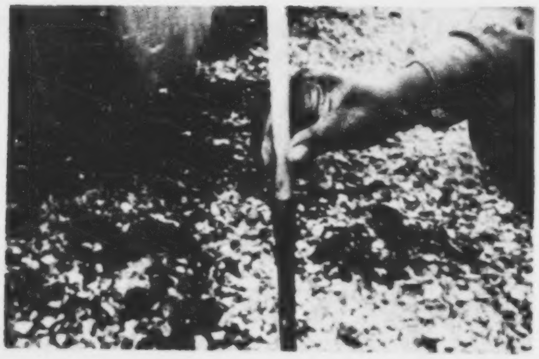
10. Get second ground rod. Insert into coupling.

CAUTION

If driving stud does not seat on ground rod, coupling will be damaged.

11. Put new coupling and driving stud at top of second rod. Make sure stud seats firmly on end of rod.
12. Drive second rod into ground until coupling is just above surface.
13. Remove driving stud from coupling.

2-19. GROUND POWER PLANT (CONT)

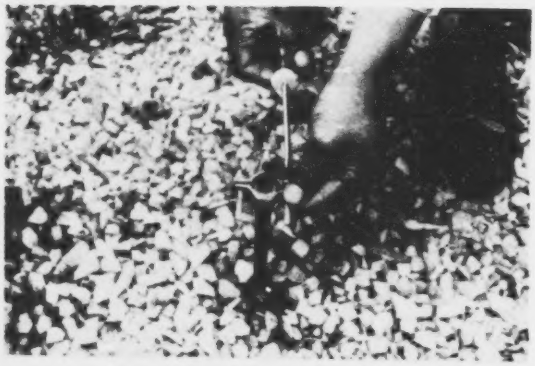


14. Get third ground rod. Insert into coupling.

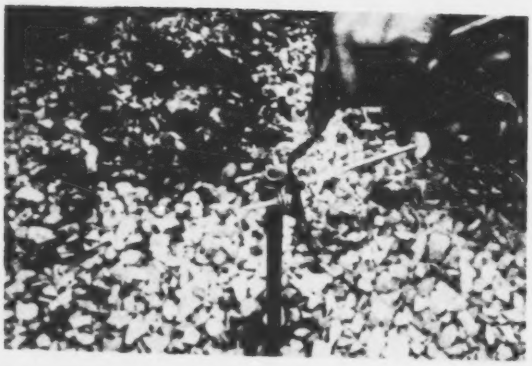
CAUTION

If driving stud does not seat on ground rod, coupling will be damaged.

15. Insert new coupling and driving stud at top of third rod.

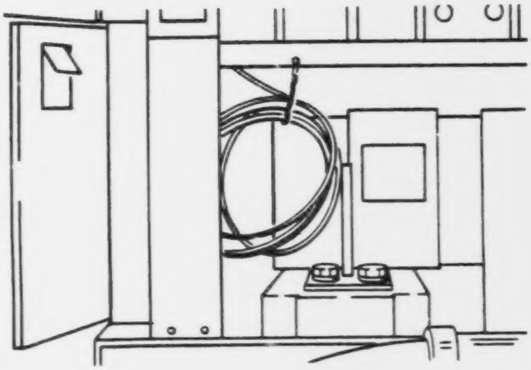


16. Drive rod into ground until coupling is just above surface.
17. Remove driving stud and coupling.
18. Place clamp on top of rod.
19. Tighten screw(s) at side(s) of clamp.



20. Insert ground cable into slot on clamp.
21. Tighten screw.
22. Repeat steps 1 thru 21 for second generator unit.

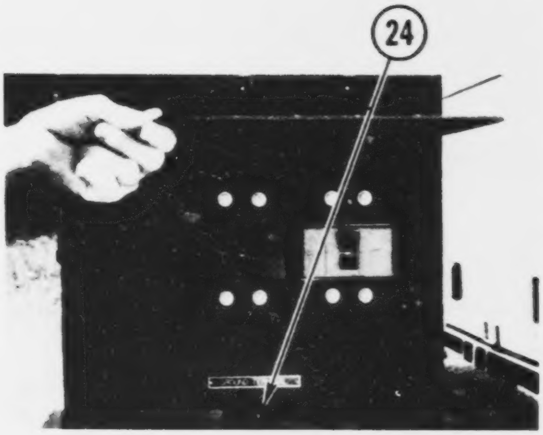
2-19. GROUND POWER PLANT (CONT)



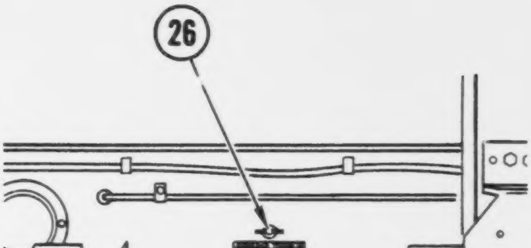
NOTE

After grounding generator units, you must also ground switch box. If special cable with terminal is unavailable, wrap end of standard cable around ground stud and tighten nut.

23. Get special ground cable for switch box from curbside compartment on generator unit 2.



24. Attach terminal end of cable on ground stud.



25. Attach free end of cable to ground stud on trailer.

26. Attach ground cable from GROUND stud on trailer to GROUND stud on generator.

NOTE

When power plant is properly grounded, it may be serviced, started and test run, if desired.

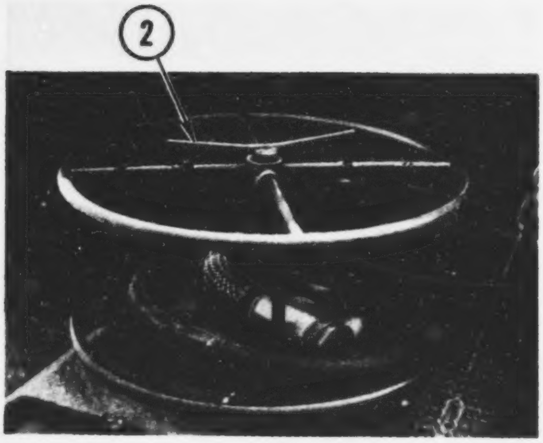
2-20. UNSTOW AND CONNECT POWER PLANT CABLES

INITIAL SETUP

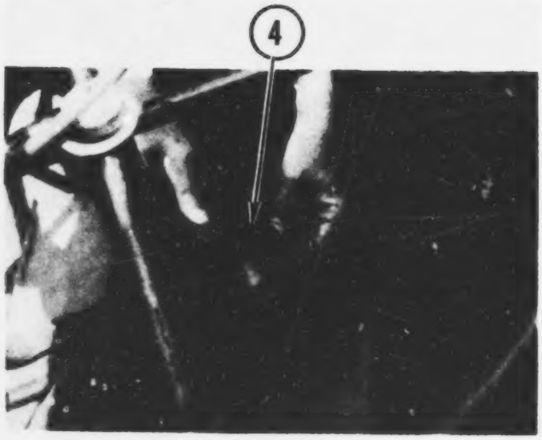
Common Tools	Personnel Required
● Tool kit	● Two

WARNING

Electrocution may result if task is done while either generator unit is operating.

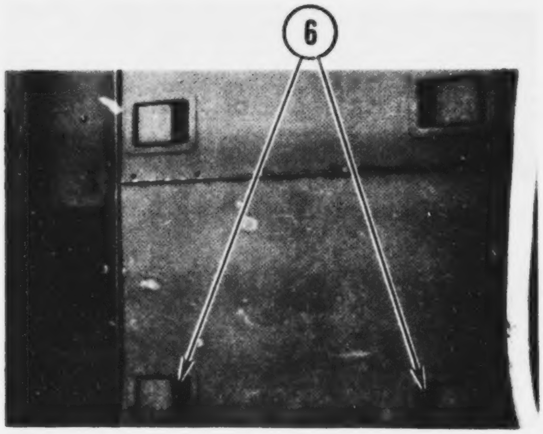


1. If not already stopped, stop both generators.
2. At top of cable reel turn T-bar and lift out.

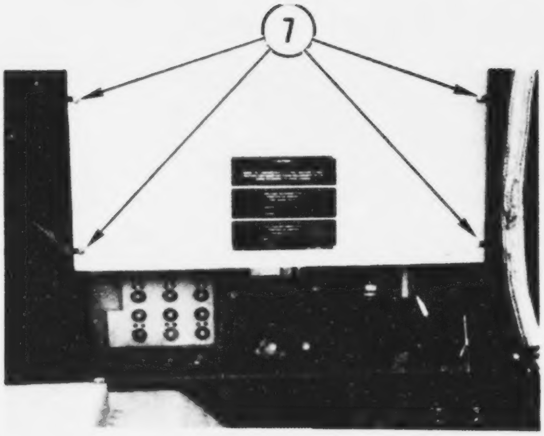


3. With your partner, lift reel from generator.
4. Remove wraps from cable.
5. Unroll cable.

2-20. UNSTOW AND CONNECT POWER PLANT CABLES (CONT)

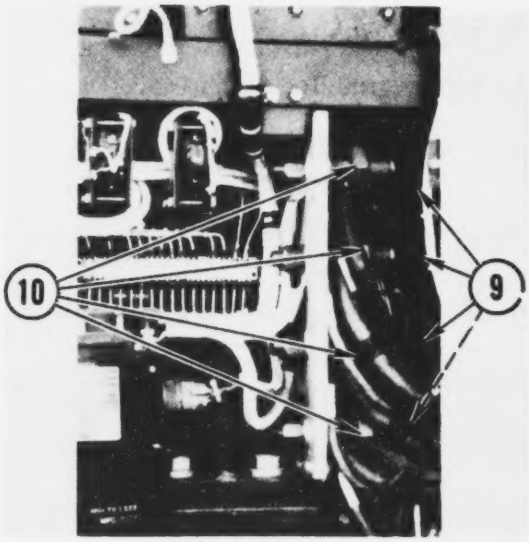


6. Open rear roadside generator door.



7. Remove screws holding cover in place.

8. Lift off cover.

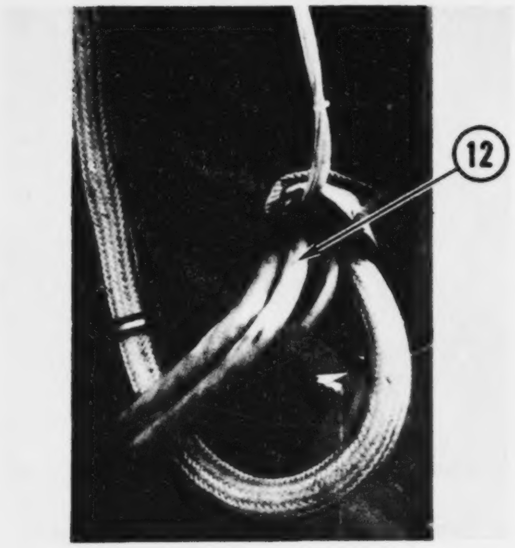


9. Open locking pins until they point straight out.

10. Using plastic wrench (stowed beside terminal board), loosen nuts.

11. Unscrew nuts until you have room to insert wires.

2-20. UNSTOW AND CONNECT POWER PLANT CABLES (CONT)



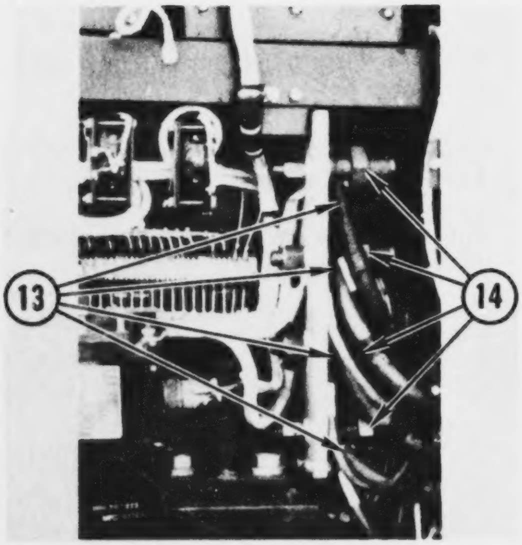
12. Push pigtail end of cable through sleeve.

NOTE

Each wire is marked. Match marking on wires with markings on load terminal board.

CAUTION

If wire marks are not clear or are suspect, tell your supervisor. Do not make a connection until you are sure it is correct.

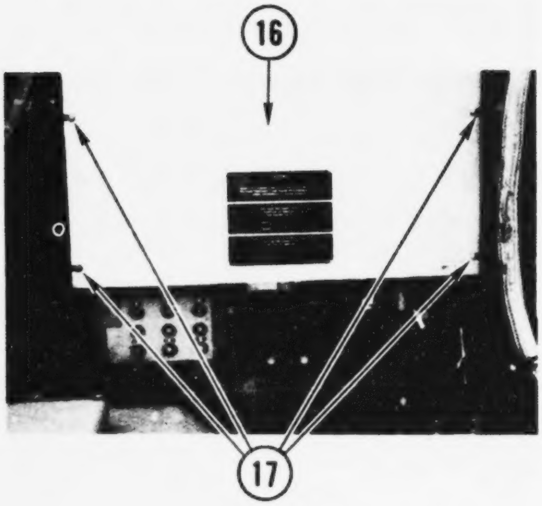


13. Insert wires as shown until all four are connected.

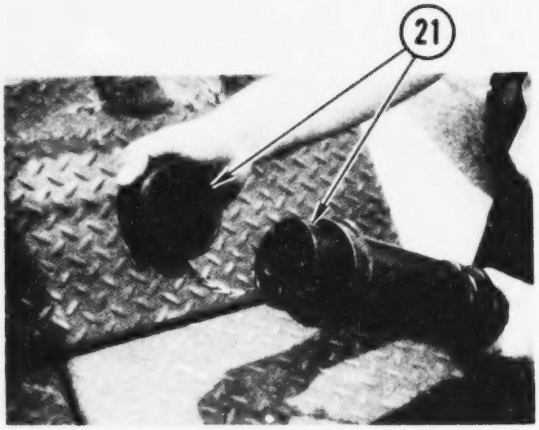
14. Tighten nuts.

15. Close wire locking pins.

2-20. UNSTOW AND CONNECT POWER PLANT CABLES (CONT)



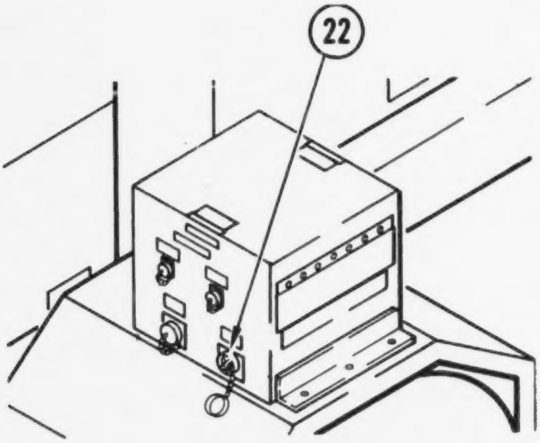
16. Replace cover.
17. Insert and tighten cover screws.
18. Close generator door.
19. Replace reel on generator.
20. Insert T-bar and tighten.



21. Remove cap from other end of cable.

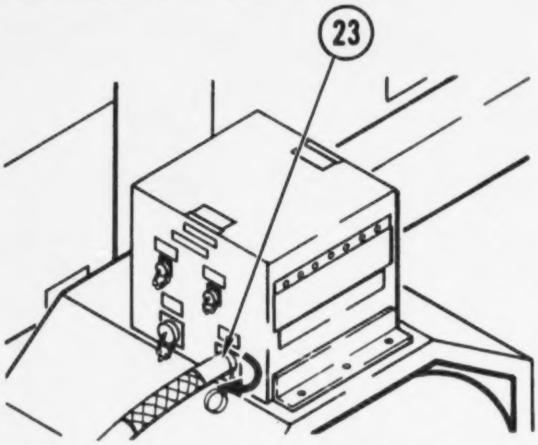
NOTE

If you are connecting the cable from generator 1 (with switch box), go to step 22. Otherwise, go to step 26.



22. Remove cap from switch box plug marked:
    POWER CABLE
    GEN NO. 1

2-20. UNSTOW AND CONNECT POWER PLANT CABLES (CONT)

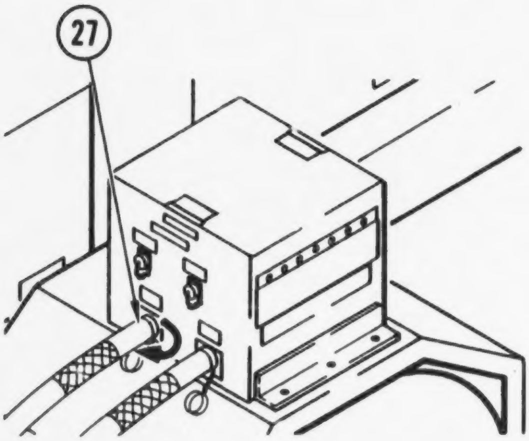


23. Line up cable and insert.

24. Turn collar as shown, until tight.

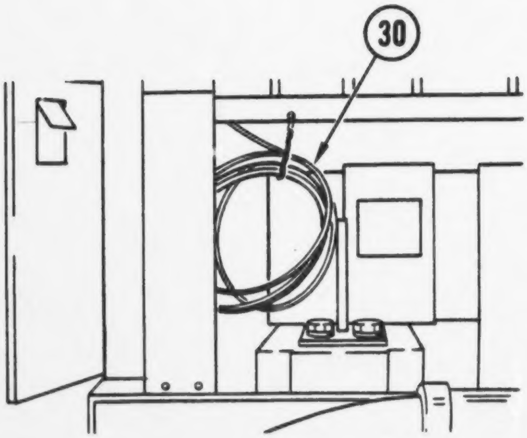
25. To connect second generator unit,
    repeat steps 1 thru 21.

26. Remove cap from switch box marked:
    POWER CABLE
    GEN NO. 2



27. Line up cable and insert.

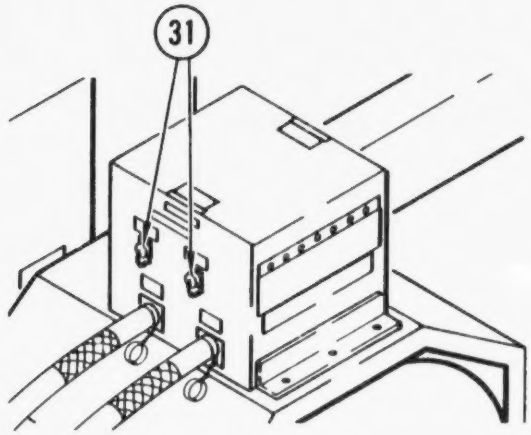
28. Turn collar, as shown, until tight.



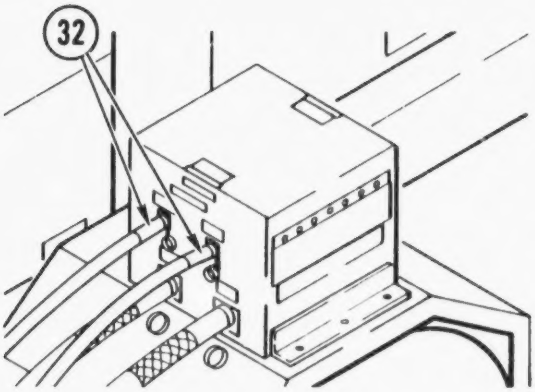
29. At generator 2, open rear curbside
    door and latch in place.

30. Remove parallel cables and close
    curbside door.

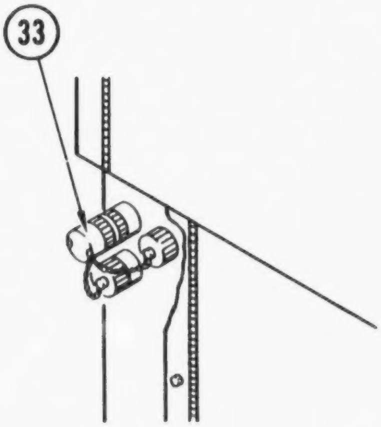
2-20. UNSTOW AND CONNECT POWER PLANT CABLES (CONT)



31. At switch box remove both parallel cable caps.

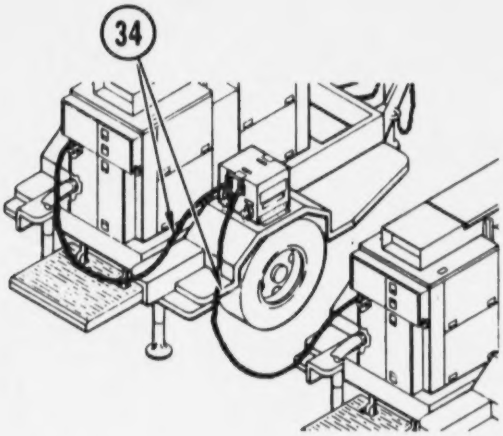


32. Connect both parallel cables.



33. Remove shorting plugs from both generators.

2-20. UNSTOW AND CONNECT POWER PLANT CABLES (CONT)



34. Connect cables to generator connectors as shown.

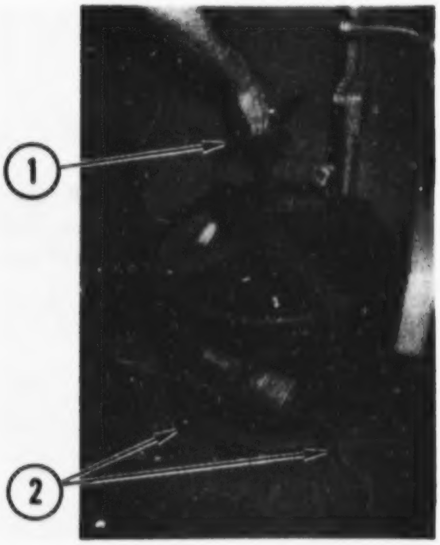
2-21. UNSTOW AND CONNECT VAN POWER CABLES

INITIAL SETUP

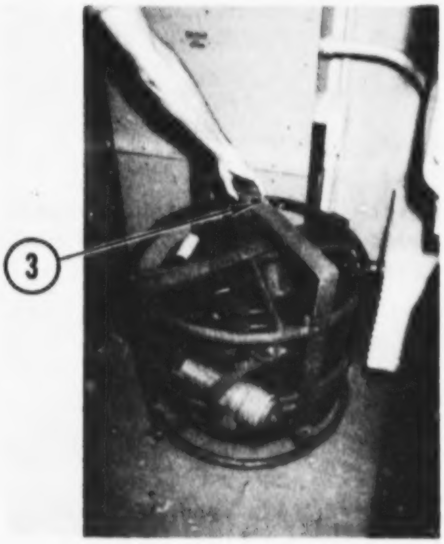
Common Tools	Personnel Required
• Tool kit • Decimal socket set	• Two

NOTE

There are six reels containing power cables. Follow these steps to unstow and connect any of them.



1. Unscrew T-bar and lift out.
2. Using socket wrench, free brackets from floor.



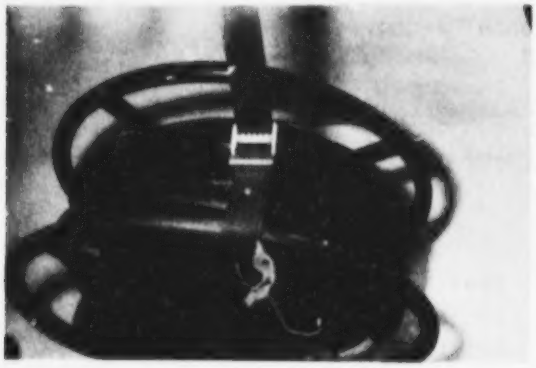
3. Lift off brackets.

WARNING

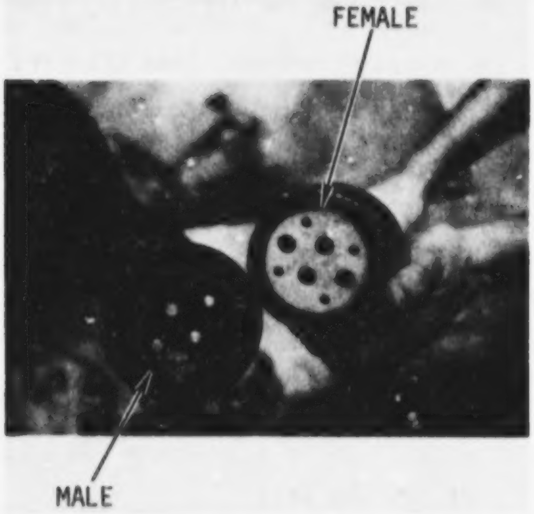
Loaded power cable reel is heavy. Don't attempt to lift without help.

4. With partner, carry reels outside van.
5. Repeat steps 1 thru 5 for other set of reels.

2-21. UNSTOW AND CONNECT VAN POWER CABLES (CONT)

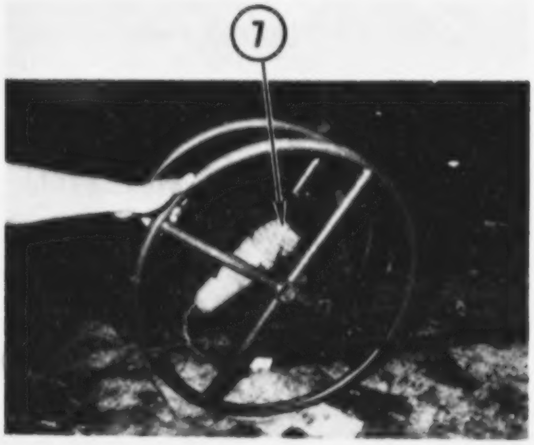


6. Remove wrap from cable.



NOTE

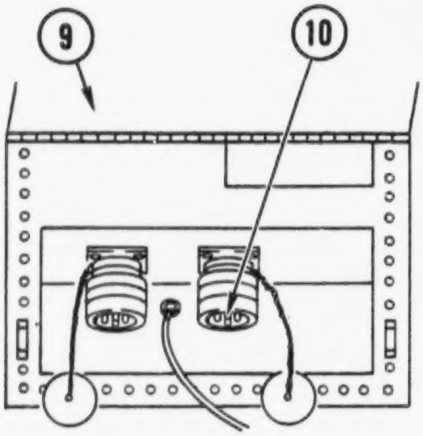
Each cable has male and female end. Keep female end near power entrance panel when you unroll cable.



7. Unroll cable.

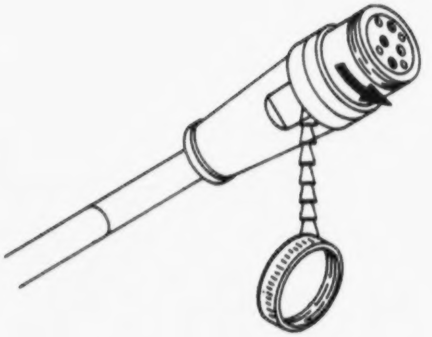
8. Repeat steps for additional cables as needed. Stow unused cable reels in secure place outside van.

2-21. UNSTOW AND CONNECT VAN POWER CABLES (CONT)

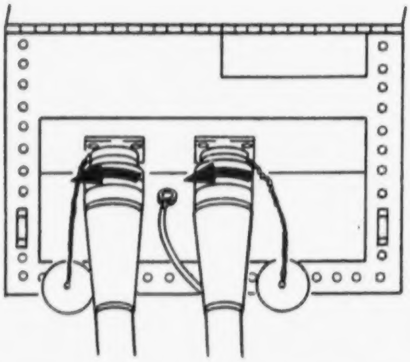


9. At rear of van, open power entrance panel.

10. Unscrew cap from male connectors.



11. Unscrew cap from female end of cable in the direction shown.

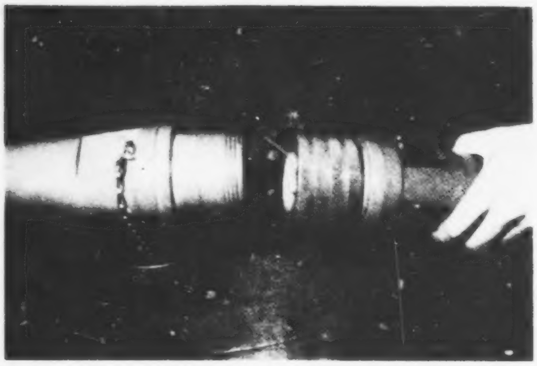


12. Line up female end of cables with male connectors. Push cables into connectors and lock by turning collar as shown.

NOTE

Cable can be connected to either connector.

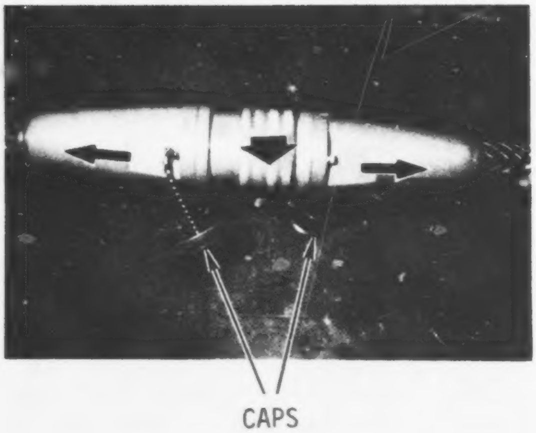
2-21. UNSTOW AND CONNECT VAN POWER CABLES (CONT)



NOTE

When mating connectors, aline male neutral pin, which is longer, with female receptacle marked N.

13. Line up male end of cable with female end of next cable. Push ends together until connectors click.



14. Screw caps together.

15. To lock together, turn collar as shown.

16. Repeat steps 15 thru 17 until you are within one cable length of power plant.

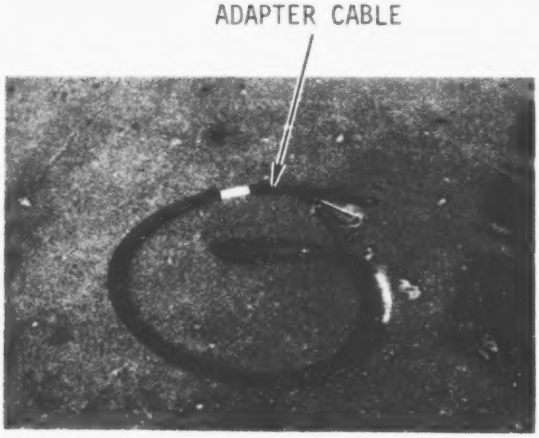
17. If you're connecting to commercial power, see your supervisor for instructions.

18. Stow reels, T-bars, and brackets under van.

2-22. CONNECT VAN ADAPTER CABLE TO SWITCH BOX

INITIAL SETUP

Materials/Spare Parts	Personnel Required
• Adaptor cable (2 ea)	• Two



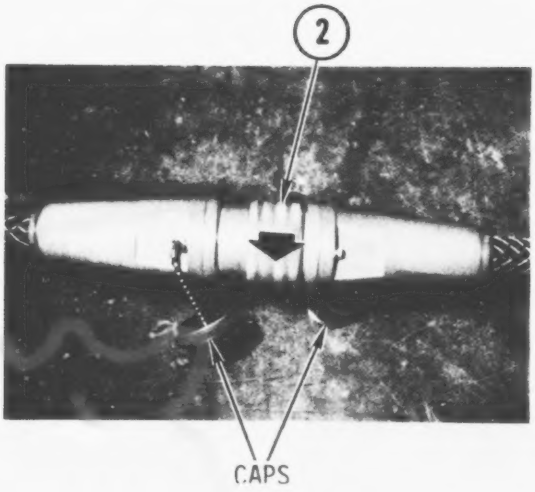
WARNING

Electrocution may result if task is done with power on.

1. If not already stopped, stop both generator units.

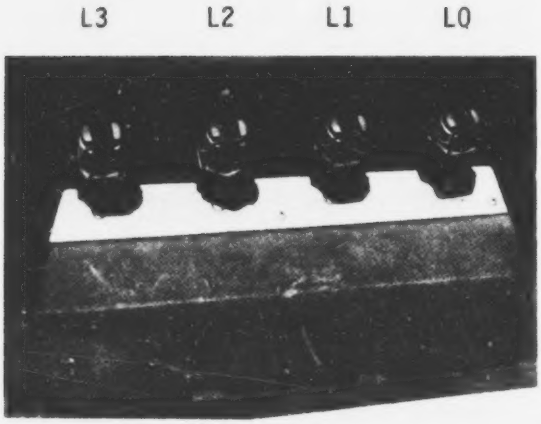
NOTE

Both adapter cables are stowed with van power cables. One end of each has pigtail leads as shown.



2. With your partner, connect van adapter cables to van power cables. (Line up female end of cable with male end of cable running from van. Push together.)
3. Screw caps together.
4. Turn collar to lock cables together.

2-22. CONNECT VAN ADAPTER CABLE TO SWITCH BOX (CONT)



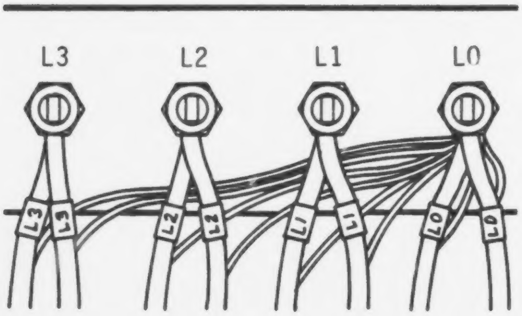
5. Open door on switch box.

6. Pull up on wire pins until they point straight out.

7. Using your hand, loosen nuts.

NOTE

There are four leads on each adapter cable. Each lead is marked and color coded:
LO - Neutral/white
L1 - Black
L2 - Red
L3 - Blue
Match marking on lead as indicated with markings on switch box. Each lead has a separate green ground wire next to it. L1, L2 and L3 interface with phase A, B and C respectively when connected to the DAS3 (D/C) LO corresponds to the neutral line in the DAS3 (D/C).



8. Push both LO leads into slot marked LO. Ensure the eight ground wires and two LO wires are in securely.

9. Bunch four green ground wires on each cable and push them into slot LO.

10. Using plastic wrench from generator, tighten nut.

11. Push down wire pin.

12. Repeat steps 8, 10, and 11 for leads L3, L2 and L1 and slots L3, L2 and L1.

13. Close switch box cover.

2-23. GROUND VAN

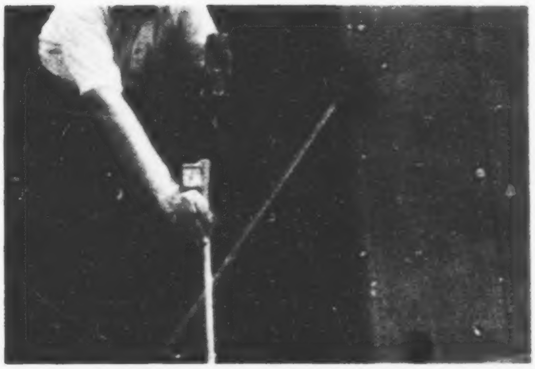
INITIAL SETUP

Common Tools	Materials/Spare Parts	Personnel Required
• Tool kit • Sledge hammer	• Two grounding leads • Two ground rods	• Two

WARNING

Instructions that follow are for grounding under usual conditions. For grounding under unusual conditions refer to TC 11-6 Grounding Techniques.

Electrocution may result if task is attempted while source power is on.



1. Make sure source power is off.

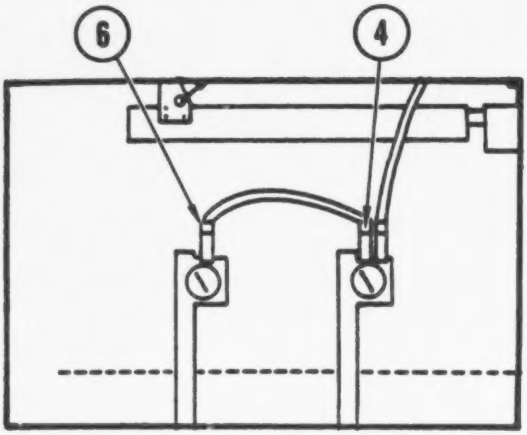
NOTE

Rod must go at least 4 feet into ground. If you hit rock, try another location or tell your supervisor.

2. Drive first rod into ground at one side of rear platform.

3. Drive second rod into ground at other side of rear platform.

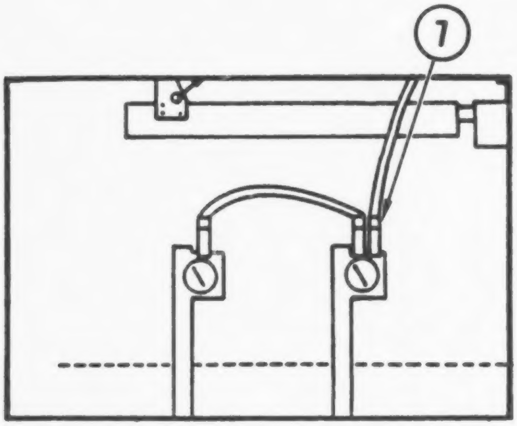
2-23. GROUND VAN (CONT)



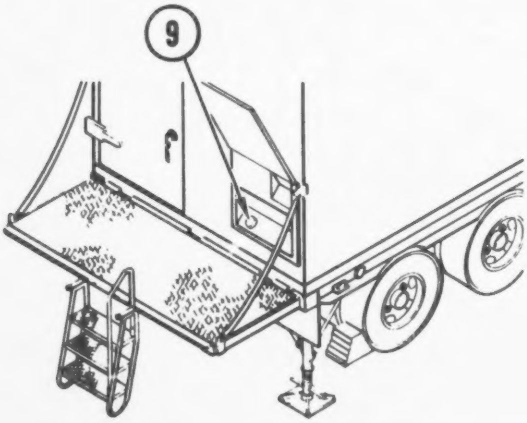
4. Take first ground lead. Attach one end to first rod.

5. Run lead under rear platform.

6. Attach other end to second rod. Tighten thumb screw.



7. Take second ground lead. Attach one end to first rod. Tighten thumb screw.



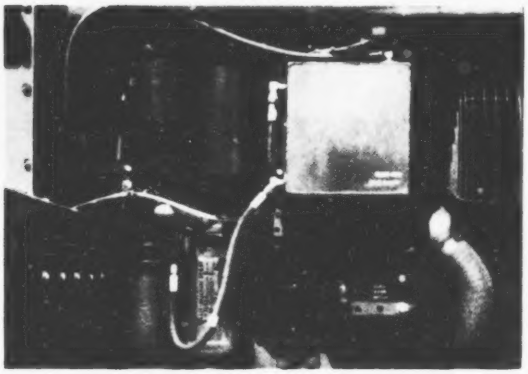
8. Open cover to power entrance panel.

9. Attach other end of second ground strap to ground stud. Tighten nut.

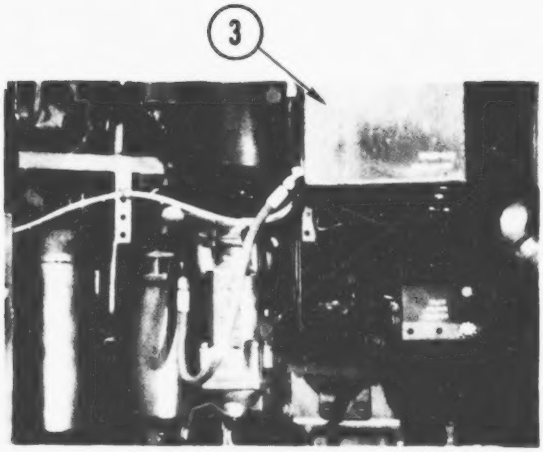
2-24. DRAIN SEDIMENT FROM GENERATOR DAY TANK

INITIAL SETUP

Materials/Spare Parts
- Disposal container

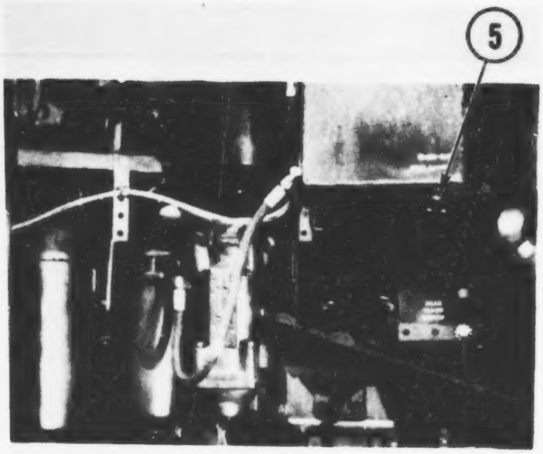


1. If continuous power is required transfer load to other generator (para 2-30).
2. Open and latch front curbside door.



3. Find day tank.

2-24. DRAIN SEDIMENT FROM GENERATOR DAY TANK (CONT)



NOTE

Drain cock is at bottom of day tank as shown in drawing.

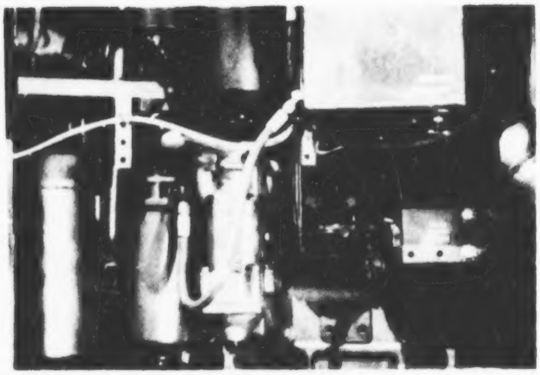
4. Hold a disposal container under the drain cock.
5. Open drain cock to drain sediment.
6. When you see clear fuel, close drain cock.
7. Unlatch and close both doors.
8. If desired, transfer load back to serviced generator (para 2-30).

2-25. DRAIN SEDIMENT FROM GENERATOR FUEL FILTERS

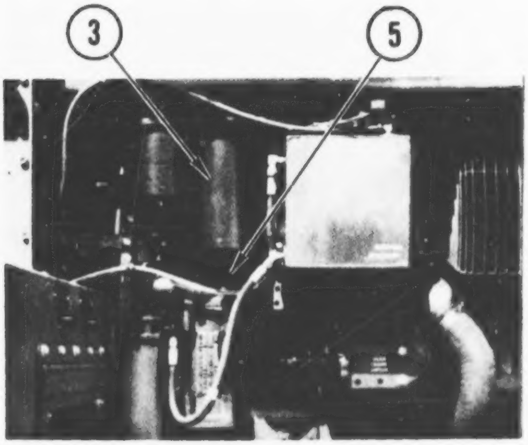
INITIAL SETUP

Common Tools	Materials/Spare Parts
• Tool kit	• Disposal container

1. If continuous power is required, transfer load to other generator (para 2-30).



2. Open front curbside door. Latch in place.

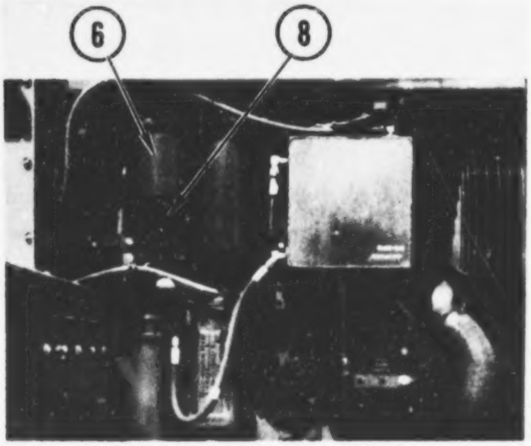


3. Find primary fuel filter.

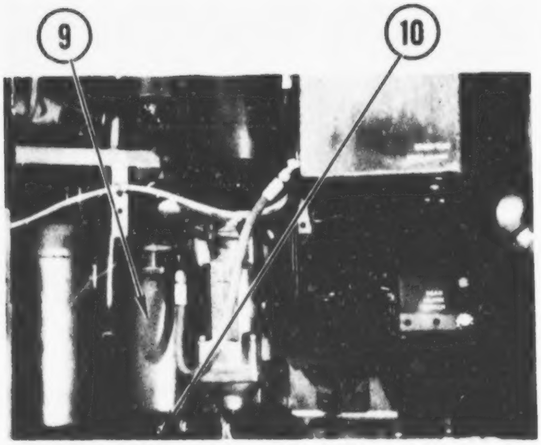
4. Place disposal container beneath filter.

5. To drain sediment, turn drain cock. When fuel turns clear, close drain cock.

2-25. DRAIN SEDIMENT FROM GENERATOR FUEL FILTERS (CONT)

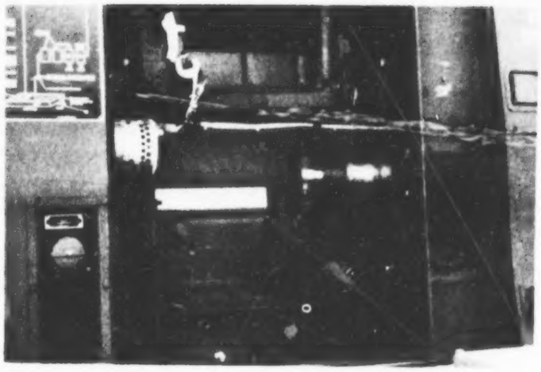


6. Find fuel strainer.
7. Hold disposal container beneath strainer.
8. To drain sediment, open drain cock. When fuel turns clear, close drain cock.

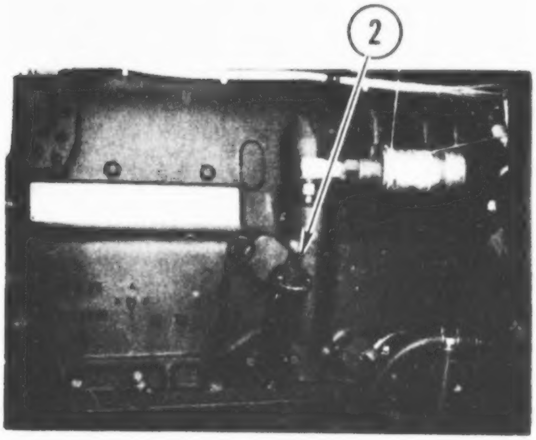


9. Find secondary fuel filter.
10. Hold disposal container beneath filter.
11. Using 7/16-inch open end wrench, remove drain plug and drain sediment. When fuel turns clear, replace drain plug.
12. Unlatch and close door.
13. If desired, transfer load back to serviced generator (para 2-30).

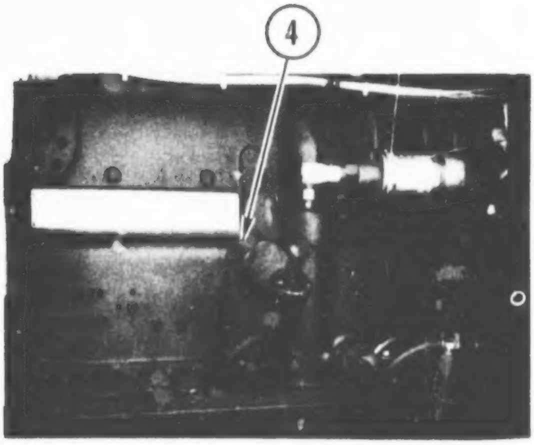
2-26. CHECK/ADD OIL



1. Open front roadside door. Latch in place.
   - If generator is running, go to step 2
   - If generator is not running, go to step 9

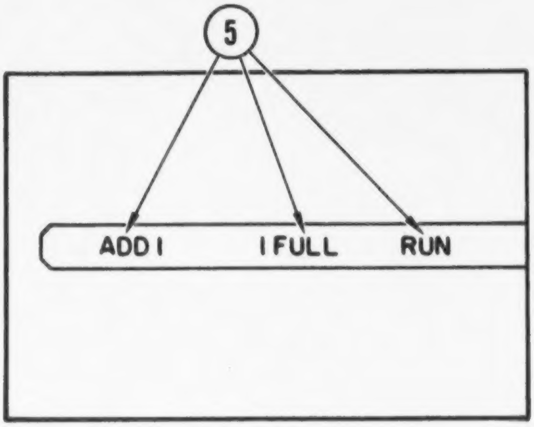


2. Find oil filler cap.
3. Remove cap.



4. Find dipstick, and pull it out.

2-26. CHECK/ADD OIL (CONT)



5. Turn dipstick to side marked RUN, and check level.

   - If it's on ADD side, replace dipstick. Go to step 6
   - If it's on FULL side, replace dipstick. Go to step 7

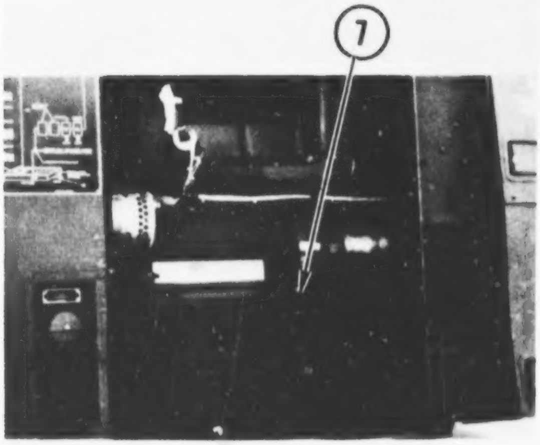
CAUTION

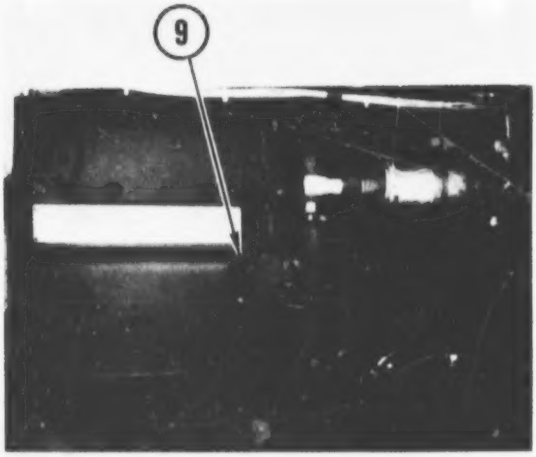
Too much oil will damage power plant. Oil level should never run over FULL mark on dipstick.

6. Add oil as required. Go back to step 4.

7. Replace filler cap.

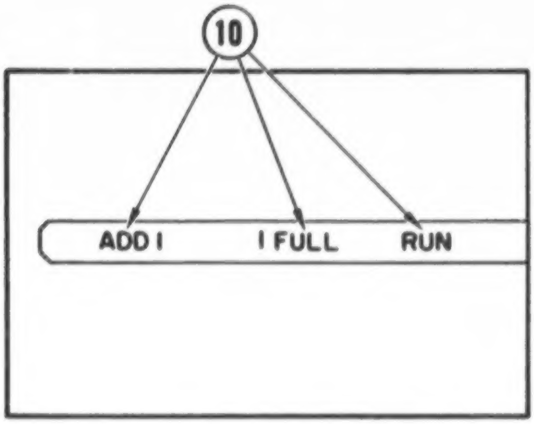
8. Unlatch and close door.



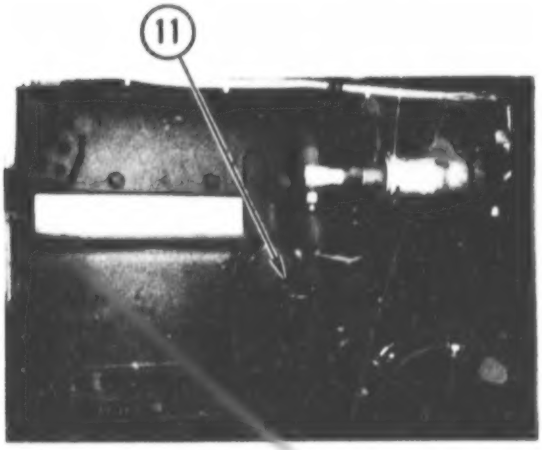


9. Find dipstick, and pull it out.

2-26. CHECK/ADD OIL (CONT)



10. Turn dipstick to side marked STOP and check level.
    - If it's on FULL side, replace dipstick. Unlatch and close door. Task is done
    - If it's on ADD side, go to step 11



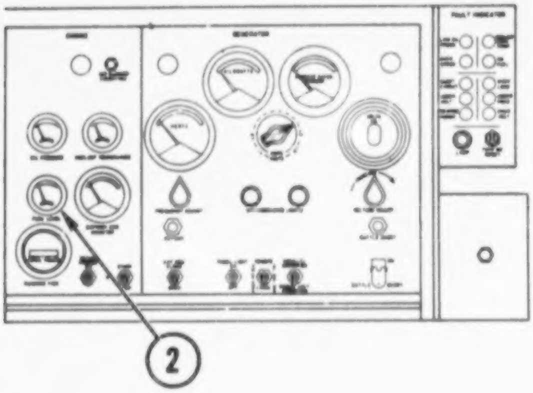
11. Find oil filler cap and remove cap.

CAUTION

Too much oil will damage power plant. Oil level should never run over FULL mark on dipstick.

12. Add oil as required. Replace cap. Go back to step 9.

2-27. CHECK/ADD FUEL

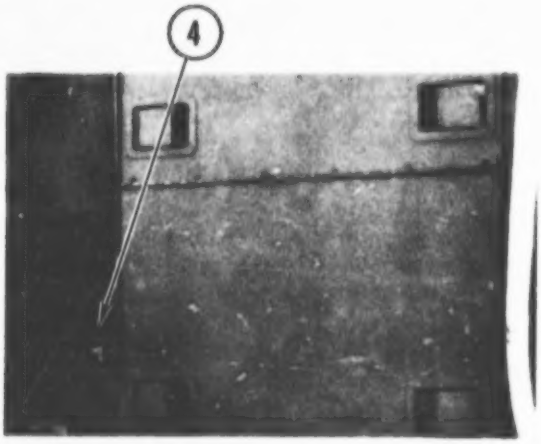


1. If generator is running, go to step 2.

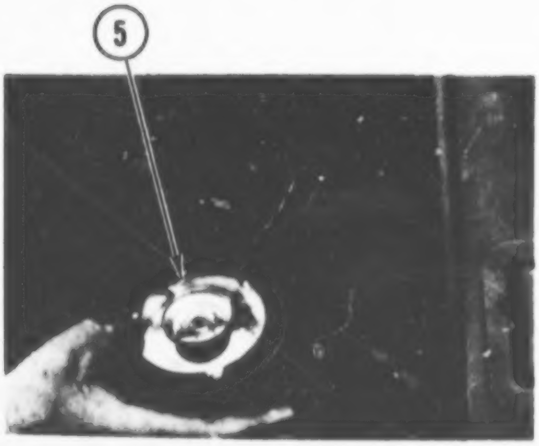
   - If generator is not running, go to step 8

2. Check fuel gauge. If fuel is low, go to step 3.

3. Transfer load to other generator (para 2-30).



4. Find fuel filler cap.

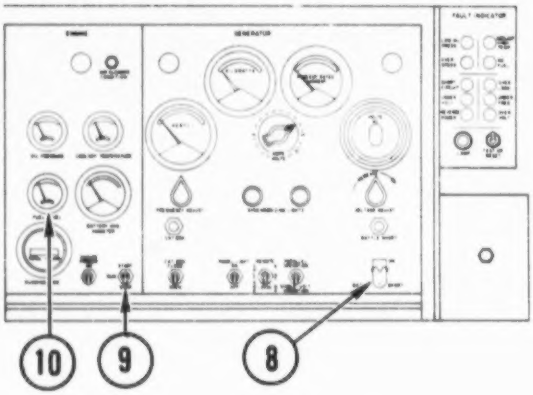


5. Unscrew filler cap and add fuel as required.

6. Replace cap.

7. If desired, transfer load back to other generator (para 2-30).

2-27. CHECK/ADD FUEL (CONT)

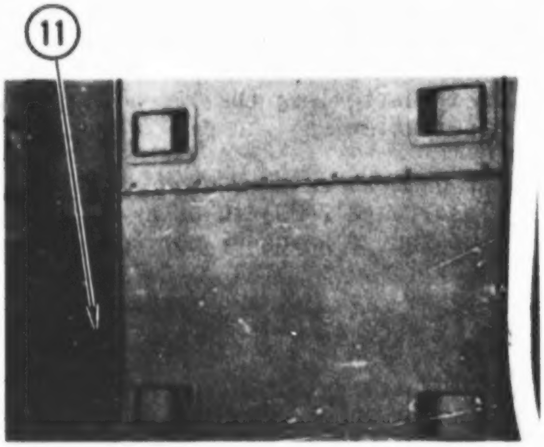


8. Set START-RUN-STOP switch to RUN.

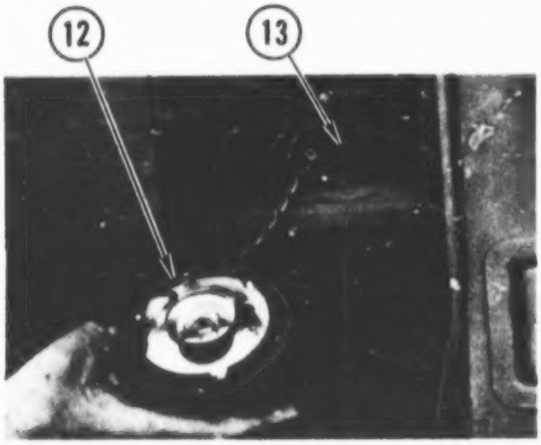
9. Set BATTLE SHORT switch to ON.

10. Check fuel gauge. Set BATTLE SHORT to OFF. Set START-RUN-STOP to STOP.

    - If fuel is low, go to step 11
    - If fuel is not low, task is finished



11. Find fuel filler cap.



12. Unscrew filler cap and add fuel as required.

13. Replace cap.

2-28. CHECK/ADD DISTILLED WATER TO BATTERIES

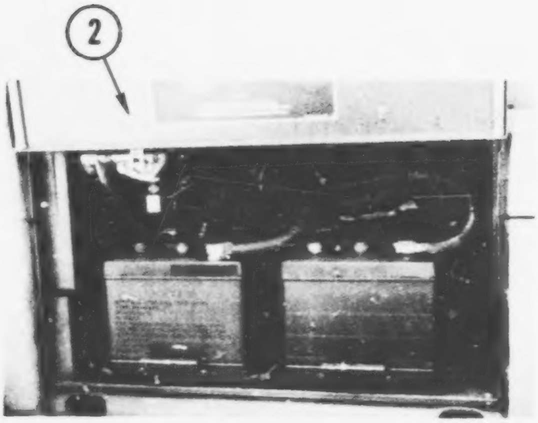
INITIAL SETUP

Common Tools	Materials/Spare Parts
• Mirror	• Distilled water (1 qt)

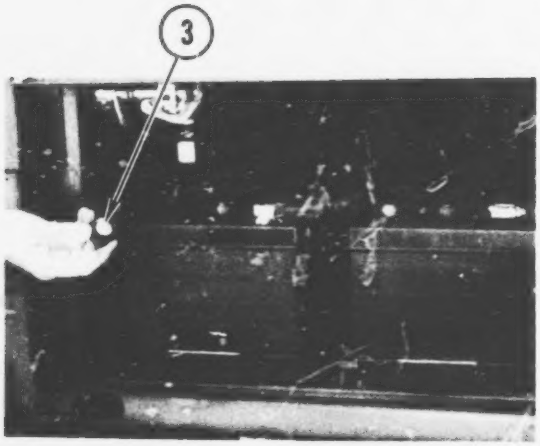
WARNING

Battery electrolyte contains sulfuric acid which can cause severe burns. Always pour water into electrolyte. Never pour electrolyte into water as high heat generated can cause an explosion or cause electrolyte to spatter. If electrolyte touches skin or clothing, rinse at once with clean water. Allow no open flame near batteries; the hydrogen gas in the batteries is explosive.

1. If generator is running, transfer load (para 2-30) to other generator and shut down generator (para 2-89). Go to step 2.
   - If generator is off, go to step 2

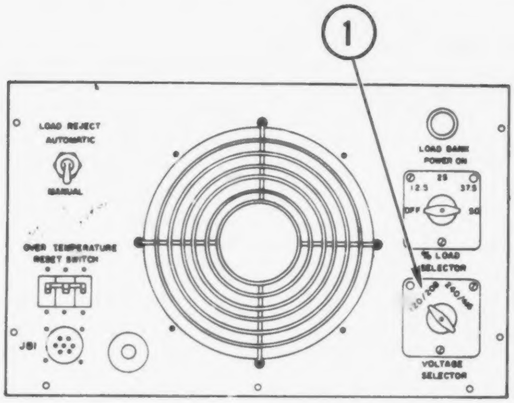


2. Open battery access door as shown.



3. Unscrew cap as shown. Use mirror to check rear cells.
4. Check water level.
   - If it's up to slot in well, replace cap
   - If it's below slot, add distilled water as required. Replace cap
5. Repeat steps 3 and 4 until you've checked all battery cells.
6. Close battery access doors.
7. If desired, transfer load back to other generator (para 2-30).

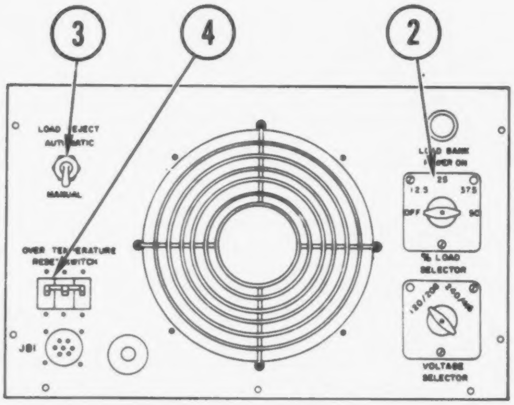
2-29. START POWER PLANT


1
LOAD REJECT
AUTOMATIC
MANUAL
OVER TEMPERATURE
RESET SWITCH
JB1
LOAD BANK
POWER ON
25
12.5
37.5
OFF
50
% LOAD
SELECTOR
120/208
240/416
VOLTAGE
SELECTOR

NOTE

Load bank controls are located on the panel above the generator control panel.

1. Set load bank VOLTAGE SELECTOR switch to 120/208.


3
4
2
LOAD REJECT
AUTOMATIC
MANUAL
OVER TEMPERATURE
RESET SWITCH
JB1
LOAD BANK
POWER ON
25
12.5
37.5
OFF
50
% LOAD
SELECTOR
120/208
240/416
VOLTAGE
SELECTOR

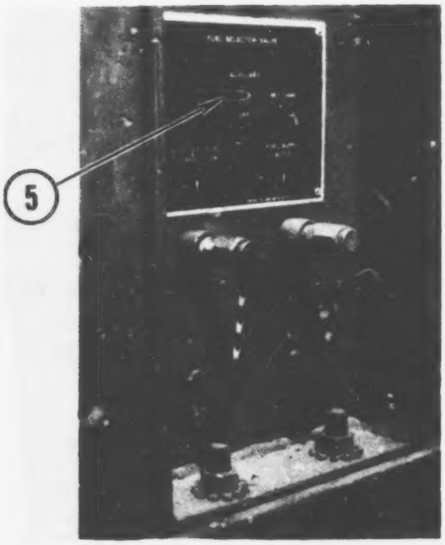
CAUTION

Failure to set % LOAD switch to OFF may result in damage to load bank.

2. Set % LOAD switch to OFF.

3. Set LOAD REJECT switch to AUTOMATIC.

4. Set OVER TEMPERATURE RESET switch to OFF.

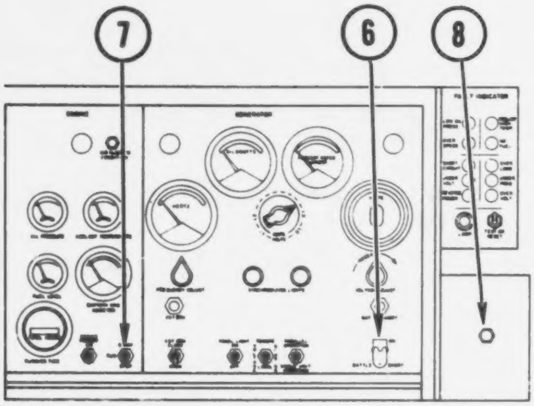


NOTE

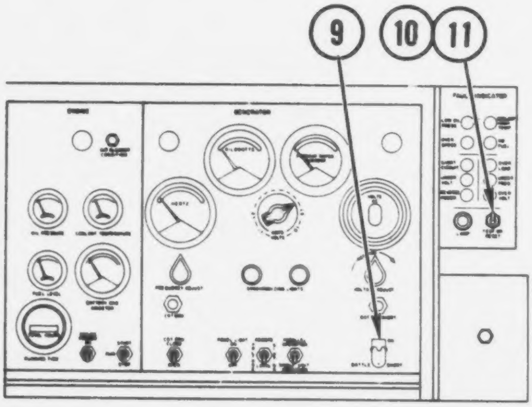
If using outside fuel supply, set fuel SELECTOR VALVE to AUXILIARY.

5. Set fuel SELECTOR VALVE at curbside of generator to SET TANK.

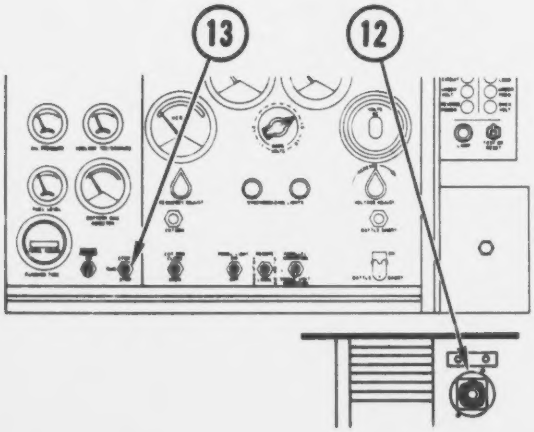
2-29. START POWER PLANT (CONT)



6. Set BATTLE SHORT switch to ON.
7. Set START-RUN-STOP switch to RUN.
8. Press DC control circuit breaker to be sure button is in.
   - Fuel pump will run
   - Allow it to run a few seconds until clicking slows



9. Set BATTLE SHORT switch to OFF.
10. Push down on TEST OR RESET switch. Make sure all fault indicator lights come on. If they don't, tell your supervisor.
11. Release TEST OR RESET switch.



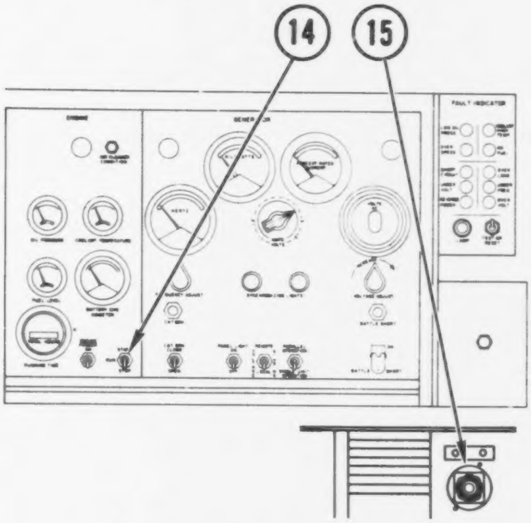
12. If it hasn't been left open since the last run, pull the throttle open about one inch.

CAUTION

Do not crank engine more than 15 seconds. Allow starter to cool for 15 seconds before starting again.

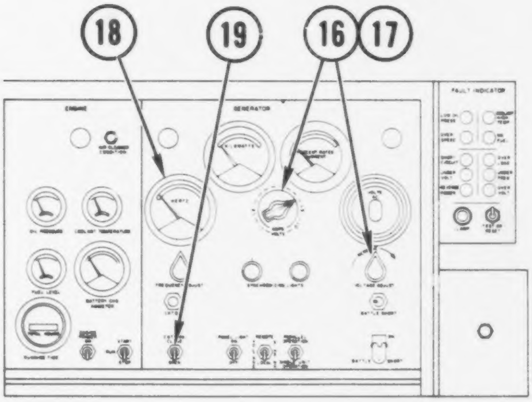
13. Set START-RUN-STOP switch to START position and hold. Check that oil pressure gauge and VOLTS AC meter show proper indication. If not, set START-RUN-STOP switch to STOP and tell your supervisor.

2-29. START POWER PLANT (CONT)


14
15
FAULT INDICATOR
ENGINE
GENERATOR
HERTZ

14. Release START switch to RUN position.

15. Rotate fine tuning knob on throttle until HERTZ gauge reads 60.

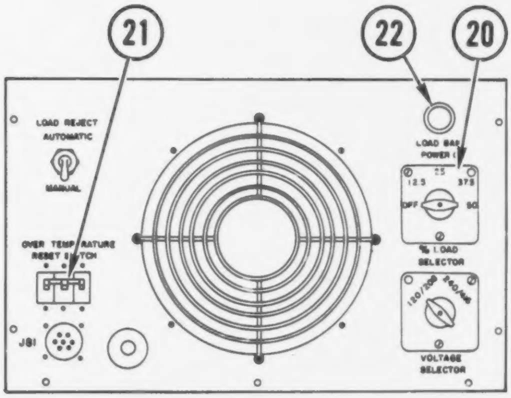

18
19
16
17
FAULT INDICATOR
ENGINE
GENERATOR
HERTZ

16. Set AMP VOLTS dial to L1 and turn VOLTAGE ADJUST dial until VOLTS AC gauge reads 120. HERTZ gauge must still read 60. If not, repeat step 15.

17. Repeat step 16 for L2 and L3.

18. Make sure HERTZ gauge still reads 60. If not, repeat step 15.

19. Hold CRT BRK in CLOSE position until CRT BRK light comes on. Release switch.


21
22
20
LOAD REJECT
AUTOMATIC
MANUAL
OVER TEMPERATURE
RESET SWITCH
J81
LOAD BANK
POWER
12.5
25
37.5
OFF
50
% LOAD
SELECTOR
120/208
240/416
VOLTAGE
SELECTOR

20. Set % LOAD switch to 50%.

21. Set OVER TEMPERATURE RESET SWITCH to ON.

22. Check that LOAD BANK POWER indicator is lit:

- If lit, go to step 23
- If not lit, tell your supervisor

23. At switchbox on generator, set circuit breakers 1 and 2 to ON to send power to van.

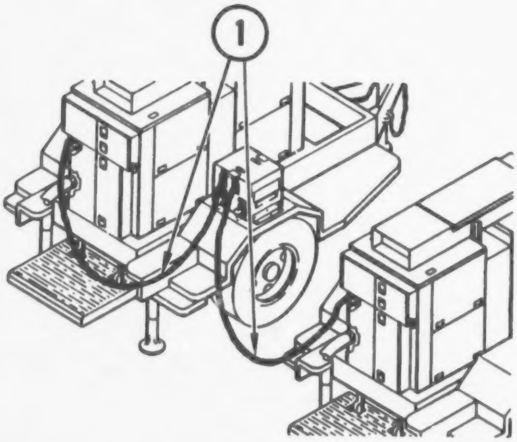
2-30. TRANSFER POWER LOAD

CAUTION

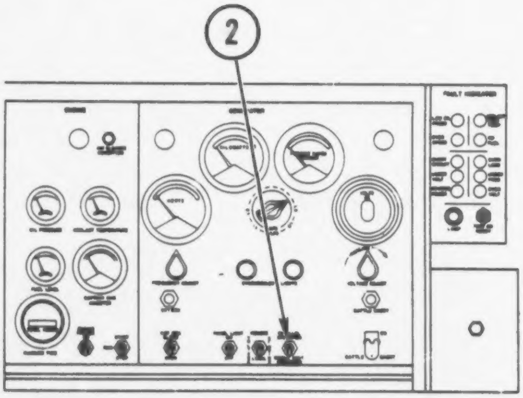
When ADP equipment is in operation, do not transfer power load unless frequency converter is operating. Damage to the ADP equipment may result if frequency varies during load transfer.

NOTE

This procedure is used to transfer the power load from one generator to the other without power interruption. Operating generator unit is referred to as O, stand-by generator unit is referred to as S.

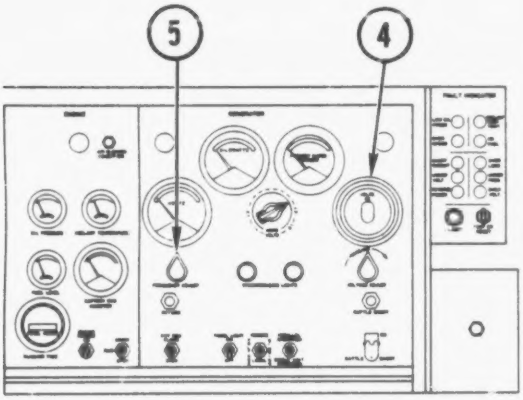


1. Ensure paralleling cables are installed as shown.
   - If not, you cannot transfer power load. You must power OFF van, shut down operating generator, start standby generator, disconnect/reconnect power cables and power van ON again
   - If installed as shown, go to step 2



2. On generator unit S, set switch to PARALLEL OPERATIONS.

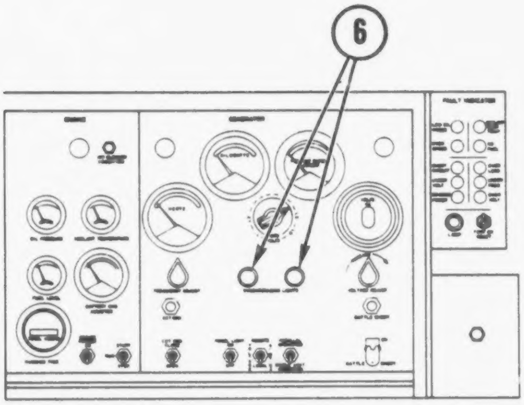
2-30. TRANSFER POWER LOAD (CONT)



CAUTION

Do not set CRT BRK switch in CLOSE Position after starting unit S. Damage to both generator units may result.

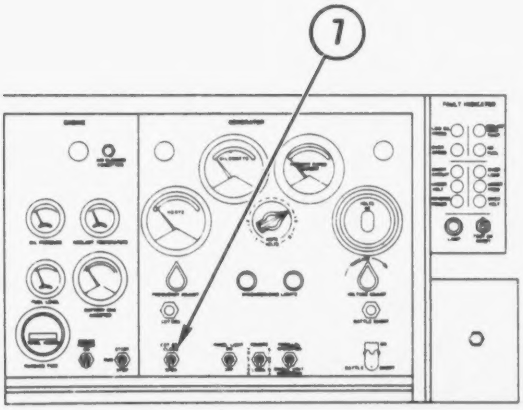
3. Start generator unit S. (para 2-29, steps 1-19, at switchbox on generator set CB ON for unit S).
4. Make sure VOLTS AC reading on unit S equals that of unit O.
5. Using FREQUENCY ADJUST and speed control, make sure HERTZ reading of unit S is the same as unit O.



6. Using speed control, slowly adjust frequency of unit S until SYNCHRONIZING LIGHTS flash at two to three second intervals.

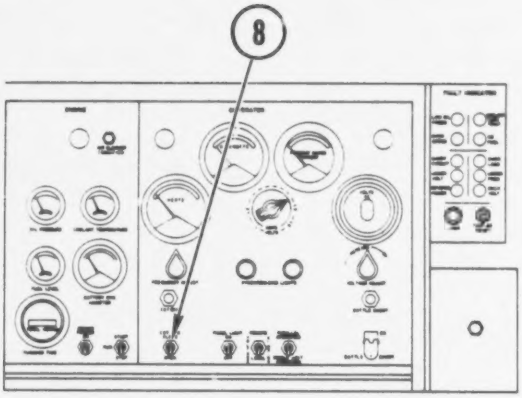
CAUTION

Do not set CRT BRK switch to CLOSE on unit S while SYNCHRONIZING LIGHTS are lit. Damage to both units may result.



7. On unit S, carefully watch pulsing of SYNCHRONIZING LIGHTS. At the instant lights go off (between pulses), set CRT BRK switch to CLOSE.

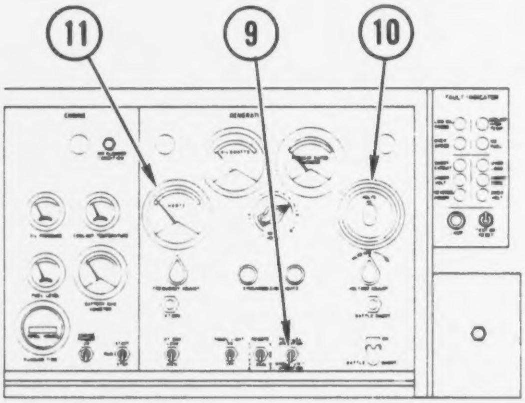
2-30. TRANSFER POWER LOAD (CONT)



NOTE

As soon as unit 0 is stopped, check HERTZ on running generator. Adjust if necessary.

8. Stop unit 0 (para 2-89).

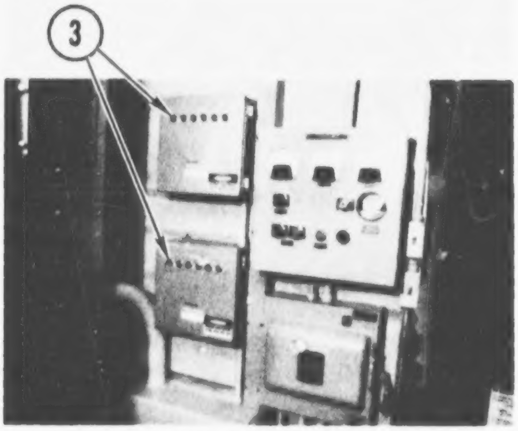


9. On running generator, set switch to SINGLE UNIT OPERATION.

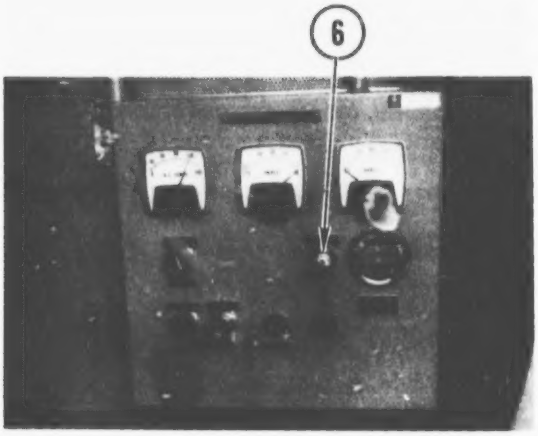
10. Make sure VOLTS AC reads same as unit 0 was reading. If not, adjust.

11. Make sure HERTZ gauge reads same as unit 0 was using. If not, adjust.

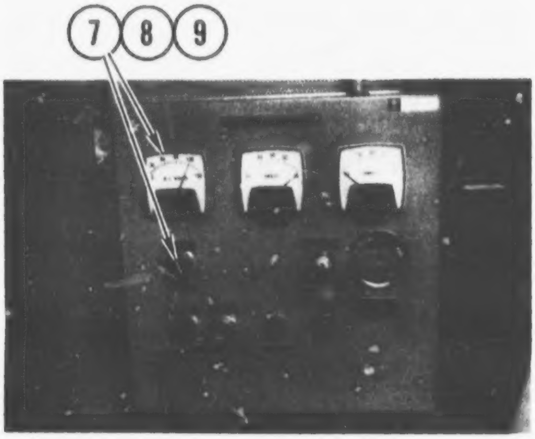
2-31. POWER ON VAN



1. Make sure van to power cables are connected.
2. Make sure source power is turned on.
3. Make sure all indicators on both power arrestor boxes are lit. If they aren't, maintenance is required.
4. Open both top doors of power distribution box.
5. Set circuit breakers to ON. Close top doors.

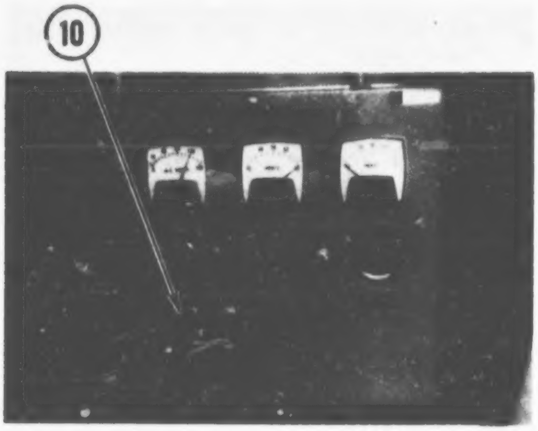


6. Depending on power source, set keyswitch to 60 Hz or 50 Hz.



7. Set dial to A. Make sure VOLTS shows 120 volts, ±10%.
8. Set dial to B. Make sure VOLTS shows 120 volts, ±10%.
9. Set dial to C. Make sure VOLTS shows 120 volts, ±10%.

2-31. POWER ON VAN (CONT)

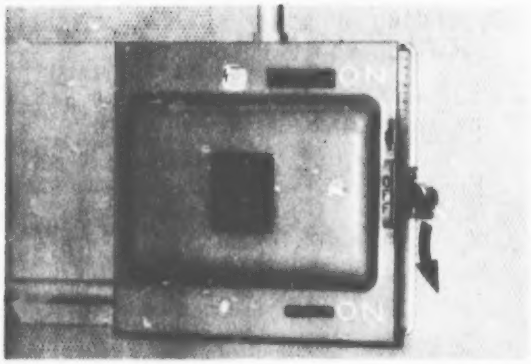


10. Press ON.

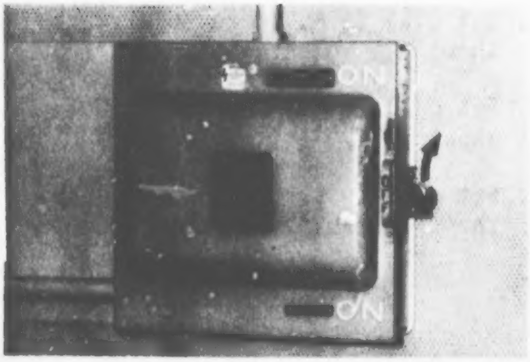
11. Ask your supervisor if frequency converter must be used for technical power.

    - If no, do steps 12, 14 and 15

    - If yes, do steps 13 thru 18

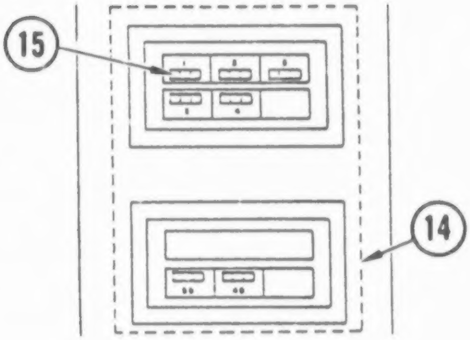


12. Pull down switch handle as shown. Do not power on frequency converter. Go to step 14 and 15.



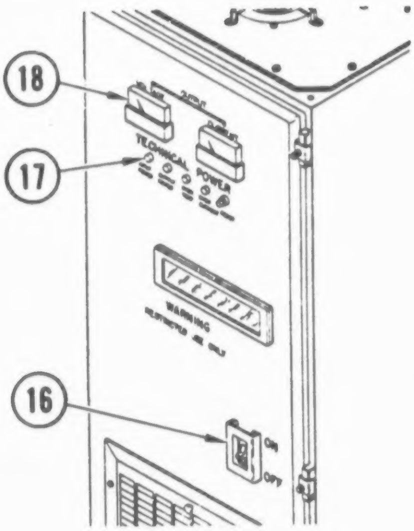
13. Pull up bypass switch as shown.

2-31. POWER ON VAN (CONT)



14. Open bottom door of power distribution box.

15. Set circuit breakers to ON. Close bottom door.

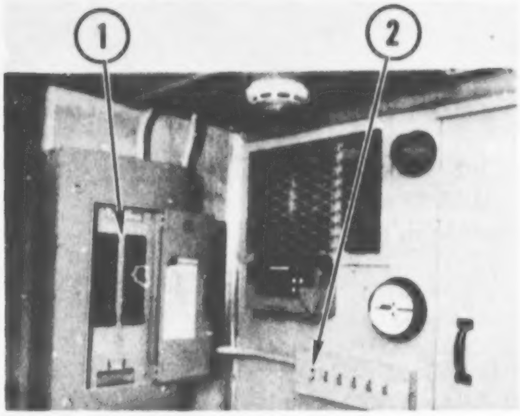

18
17
16
TECHNICAL
POWER
WARNING
ON
OFF

16. Set frequency converter circuit breaker ON.

17. Make sure INPUT power light is on.

18. Make sure VOLTAGE METER reads between 112 and 120 volts. If not, maintenance is required.

2-32. APPLY UTILITY POWER

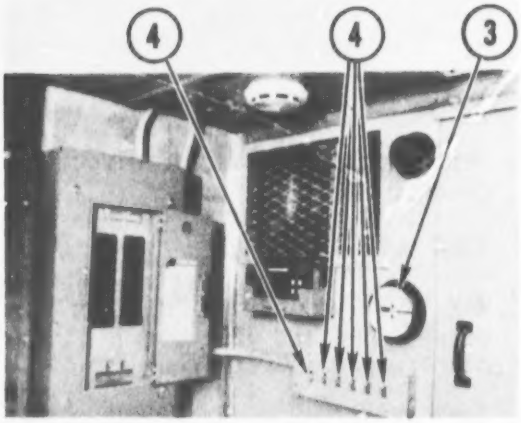


1. At utility power box, set all circuit breakers to ON.

2. At interior lights panel, switch on incandescent lights.

WARNING

Do not operate utility lights when cooling/ventilating units are not in service. Heat buildup may create a fire hazard.



3. Check temperature inside van

   - If van temperature is below 50°F (10°C), DO NOT switch on fluorescent lights. Use incandescent lights only

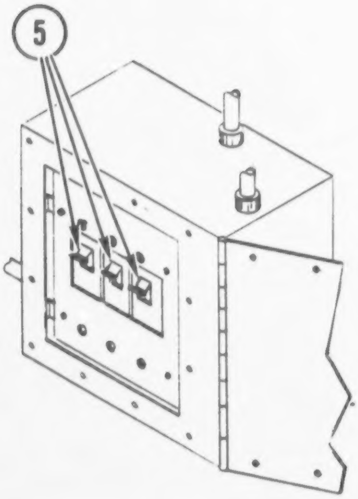
   - If temperature is 50°F (10°C) or more inside van, go to step 4

4. Turn ON fluorescent lights and turn OFF incandescent lights.

NOTE

Power is supplied to the A and B cabinets and Crypto cabinet through a separate power box that is screwed shut. The three circuit breakers should remain in the ON position.

5. Check power to A cabinet, B cabinet and Crypto. If equipment has failed to power on, check circuit breakers in communications power box.

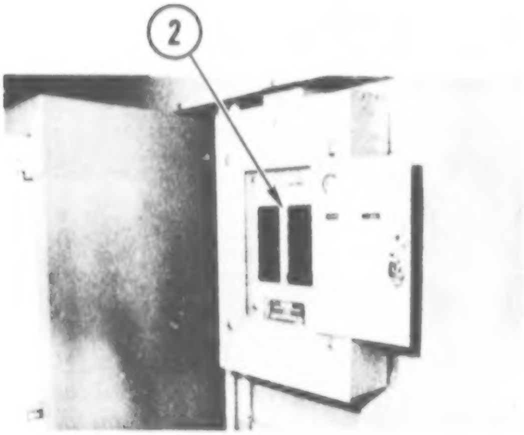


2-33. APPLY TECHNICAL POWER

1. Make sure these devices are powered off:

   CPU
   Tape drives
   Console terminal
   Diskette drive unit
   Disk drives
   Card reader/punch
   Line printer
   I/O terminals
   Console printer
   Magnetic tape cleaner

2. At tech power box, set all circuit breakers to ON.



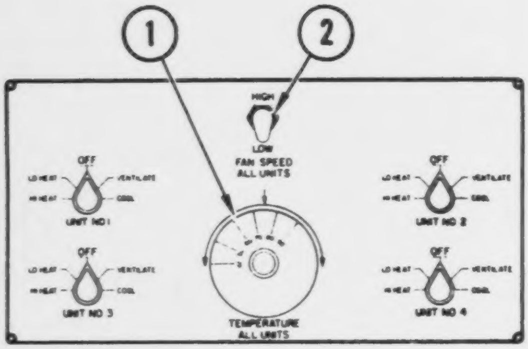
2-34. STABILIZE ENVIRONMENT

NOTE

Temperature in the van must be maintained between 65°F and 80°F. Relative humidity must be maintained between 20% and 50%. The ideal humidity range is 30% to 40%.

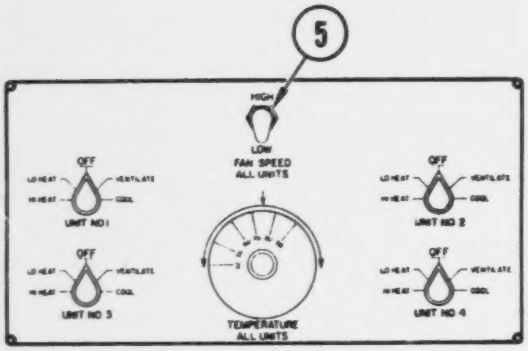
- If conditions require cooldown of van, follow steps 1 thru 4 and 7 thru 11
- If warmup is required, follow steps 1, and 5 thru 11

In all cases, open all duct dampers when initially stabilizing the environment.



①
②
HIGH
LOW
FAN SPEED
ALL UNITS
OFF
LO HEAT
HI HEAT
VENTILATE
COOL
UNIT NO 1
UNIT NO 2
UNIT NO 3
UNIT NO 4
TEMPERATURE
ALL UNITS

1. At temperature control panel, set TEMPERATURE dial at 70°F to 75°F.
2. For cooldown, set fan speed to HIGH. Set air conditioner 1 to VENTILATE, set air conditioners 2, 3 and 4 to cool.
3. When van temperature drops within range, set FAN SPEED to LOW, set air conditioner 1 to vent, 2 and 3 to OFF and 4 to COOL.
4. Ensure overhead vent ducts are open.



⑤
HIGH
LOW
FAN SPEED
ALL UNITS
OFF
LO HEAT
HI HEAT
VENTILATE
COOL
UNIT NO 1
UNIT NO 2
UNIT NO 3
UNIT NO 4
TEMPERATURE
ALL UNITS

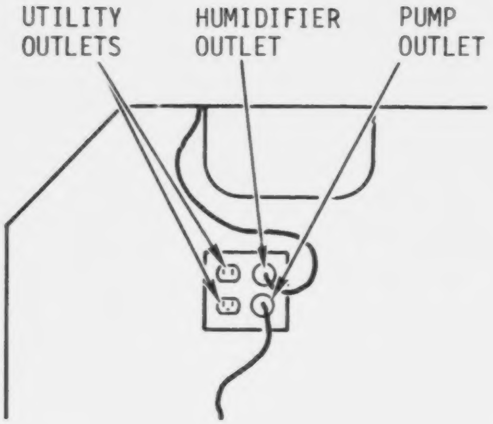
5. For initial warmup to bring van temperature to 65°F, turn air conditioner 1 to ventilate, air conditioner 4 to LO HEAT, air conditioner 3 to LO HEAT, and air conditioner 2 to OFF.
6. When van temperature stabilizes, set air conditioner 1 to ventilate, air conditioner 4 to LO HEAT and air conditioners 2 and 3 to OFF.

NOTE

If operating under unusual conditions, such as in extreme cold, follow emergency procedures in paragraph 2-103, or in extreme heat, follow emergency procedures in paragraph 2-104.

best copy available

2-34. STABILIZE ENVIRONMENT (CONT)



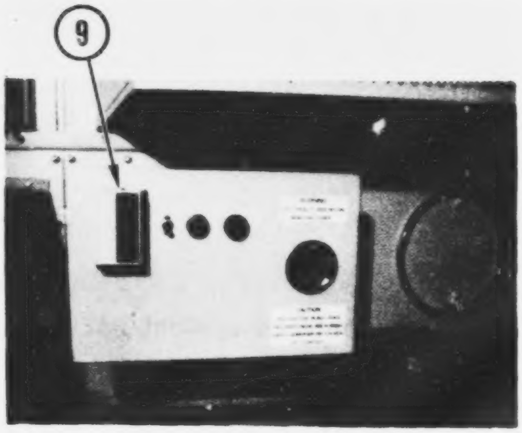
7. Check humidifier pump tank. Fill with distilled water from 5-gallon jerrican (para 3-13).

CAUTION

The two left-hand ac power outlets are always on for utility use and not switched by humidifier controls.

8. Check that humidifier power cord and pump power cord are plugged into the two right-hand ac power outlets as shown.

   - If both are not plugged in, do it now



9. Set humidistat to 90%.

10. Turn humidifier to ON. Make sure humidifier operates.

    - If it does, go to step 11

    - If it does not, begin troubleshooting (See table 3-1.)

11. Set humidistat to 30%.

NOTE

Monitor the hygrometer during the first duty cycle. If humidity drops below 20%, set humidistat higher (in 5% increments) until humidity is maintained at 20%. When humidifer water level in tank drops, alarm will sound. Repeat step 7.

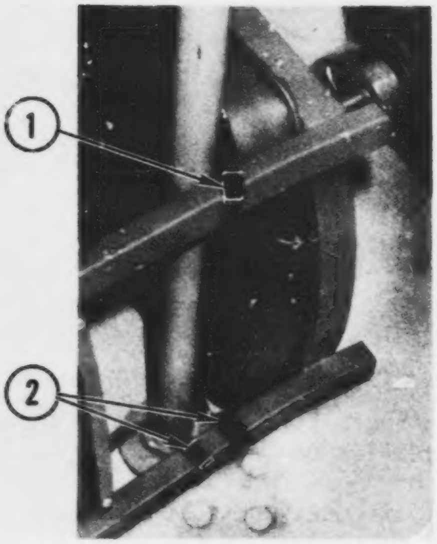
2-35. SET UP OPERATOR CHAIRS

INITIAL SETUP

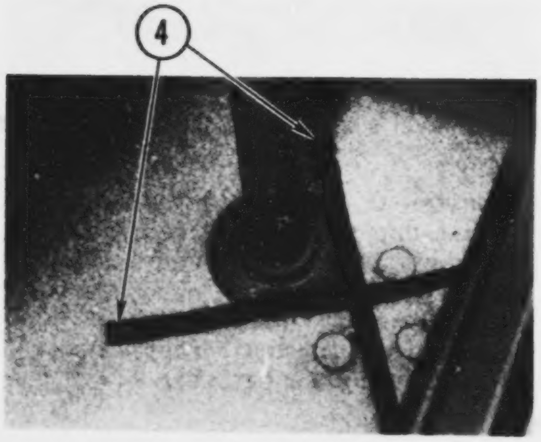
Materials/Spare Parts
- Plastic storage bag

NOTE

There are three operator chairs. Follow the same steps to set up each chair.



1. Unbuckle tie. Remove tie.
2. Unbuckle ties. Leave straps on floor.



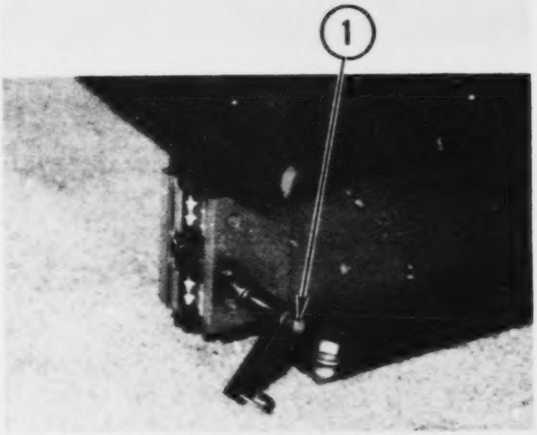
3. Lift up chair to upright position.
4. Pull straps out of brackets.
5. Stow tie down straps in plastic bag and place in storage drawer.

2-36. PREPARE CPU FOR OPERATION

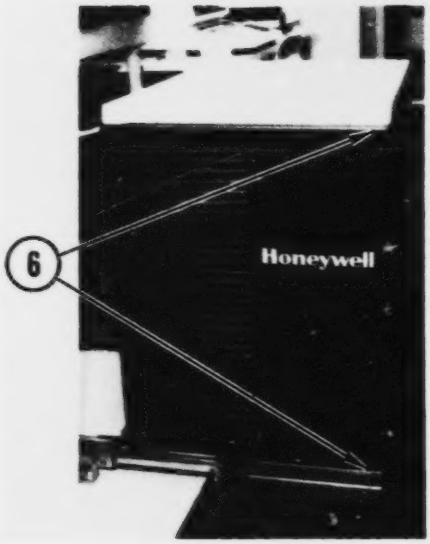
INITIAL SETUP

Common Tools
- Tool kit
- TORX offset wrench

Materials/Spare Parts
- Plastic storage bag
- Marking pen

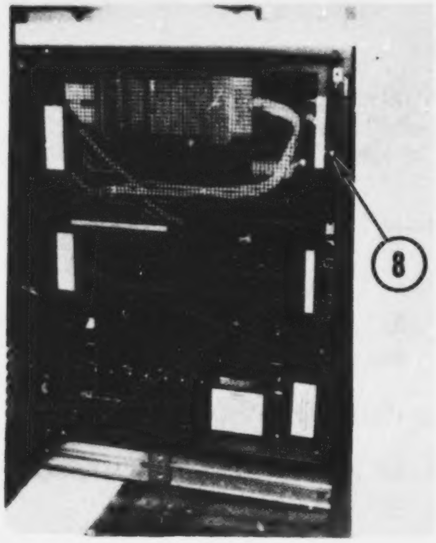


1. At one rail of CPU, push and hold button on locking pin.
2. Pull out pin.
3. At other rail of CPU, push and hold button on locking pin.
4. Pull out pin. Store pins in plastic parts bag.
5. Pull out CPU.

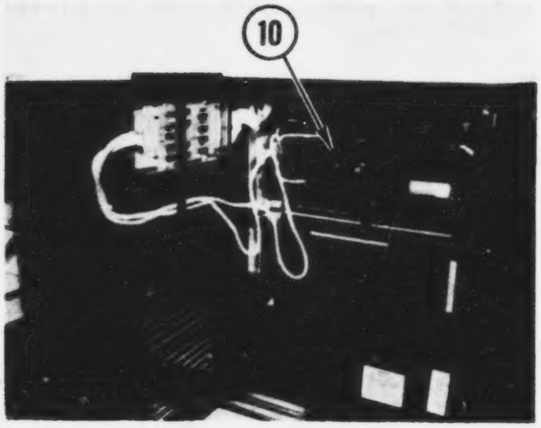


6. Remove screws.
7. Open door.

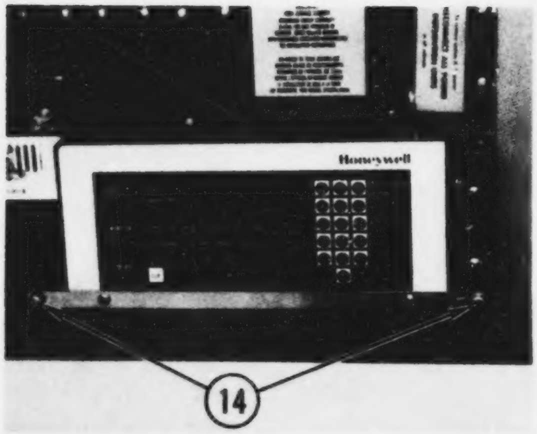
2-36. PREPARE CPU FOR OPERATION (CONT)



8. Loosen captive screws on top grill.
9. Open grill.

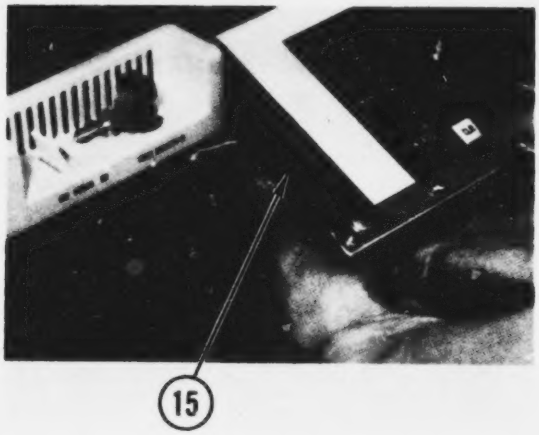


10. Find RTC battery switch on left side of MDC board. Set switch to left in ON position.
11. Close grill, tighten captive screw.
12. Close CPU door.
13. Slide CPU back against wall.



14. Unscrew control panel.

2-36. PREPARE CPU FOR OPERATION (CONT)



15. Tilt up panel.
16. Lock pins in place.
17. Mark parts bag CPU TIE-DOWN PARTS and store in parts storage drawer.

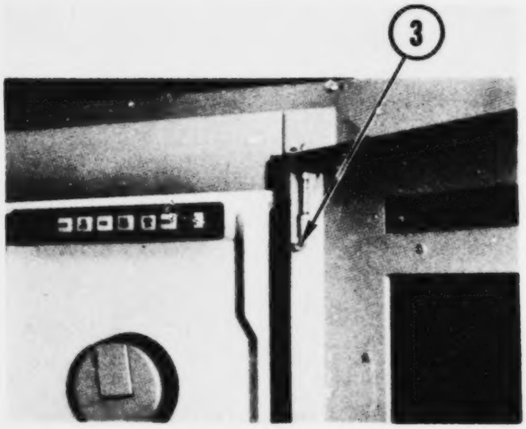
2-37. PREPARE TAPE DRIVE FOR OPERATION

INITIAL SETUP

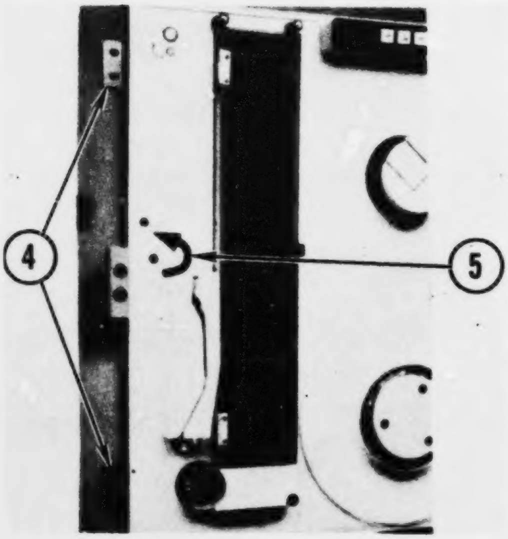
Common Tools
- Tool kit

NOTE

There are two tape drives. Follow these steps to prepare either one.

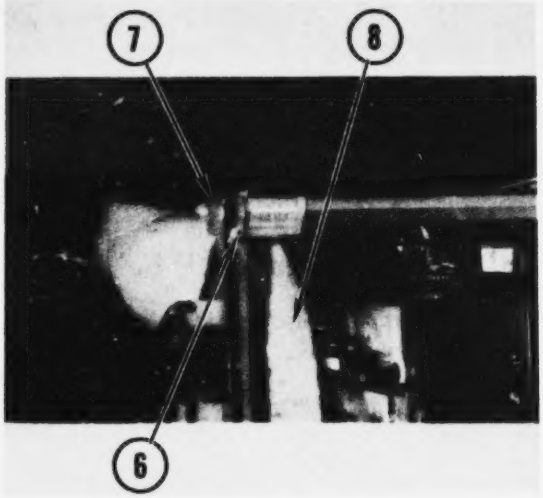


1. Make sure ON/OFF switch at top of each cabinet is OFF.
2. Open latch cover on tape drive cabinet and swing front cover open.
3. Hold cover at bottom and pull down on spring loaded pin on top of inside cover and pull out to remove cover.

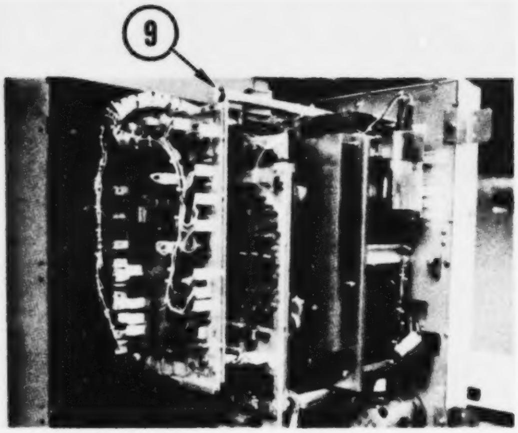


4. Remove screws from top and bottom braces. Bag and retain screws. Do not remove braces from device.
5. Insert flat tip screwdriver in latch hole. Turn two or three times as shown. Pull open cabinet.

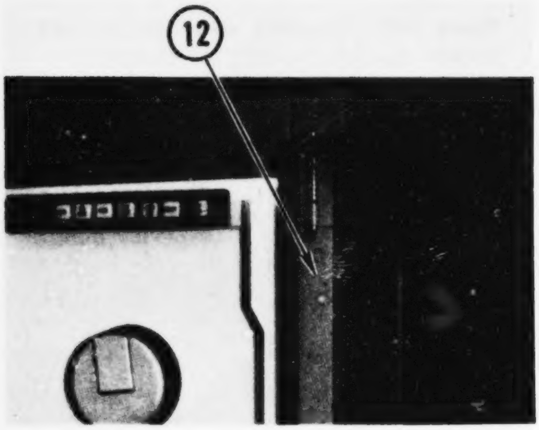
2-37. PREPARE TAPE DRIVE FOR OPERATION (CONT)



6. Remove tie wraps from latches and support bars.
7. Turn thumbscrew as shown to open board.
8. Carefully remove packing material from between boards and retain.



9. Close boards. Turn thumb screw as shown.
10. Close cabinet.
11. Use flat tip screwdriver to tighten latch.

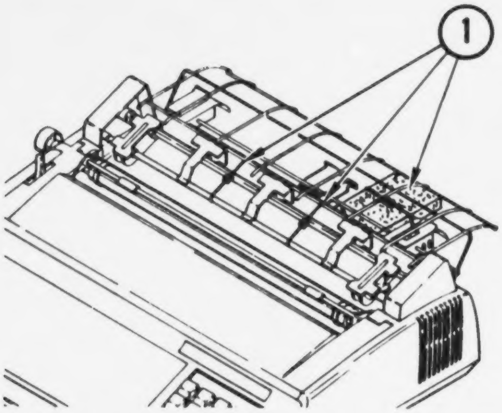


12. Install cover.
13. Load scratch tapes on both drives (TM 11-7025-209-10).
14. Close cover and latch.

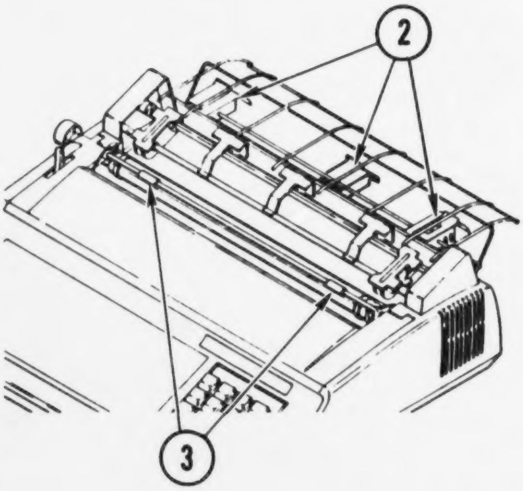
2-38. PREPARE CONSOLE PRINTER FOR OPERATION

INITIAL SETUP

Common Tools	Materials/Spare Parts	Supplies
• Tool kit	• Ribbon cartridge • Paper rack	• Printout paper (box)



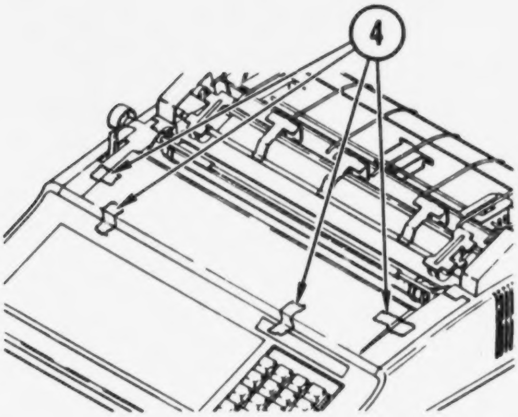
1. Remove tie wraps and foam block from paper rack.



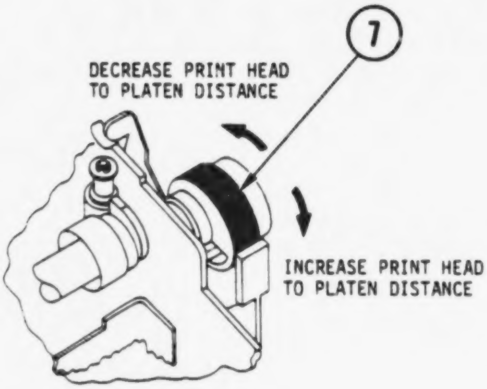
2. Move left, middle and center metal paper guides to their proper position.

3. Move right, and left, rubber paper guides to proper position.

2-38. PREPARE CONSOLE PRINTER FOR OPERATION (CONT)



4. Remove tape from access cover and from paper cutter.
5. At bulk storage cabinet get box marked console printer and place on floor between console printer and line printer.
6. Install paper (para 3-18).


7
DECREASE PRINT HEAD TO PLATEN DISTANCE
INCREASE PRINT HEAD TO PLATEN DISTANCE

7. Open access cover and adjust forms thickness knob. Ensure print head will be close enough to paper to make an impression.

NOTE

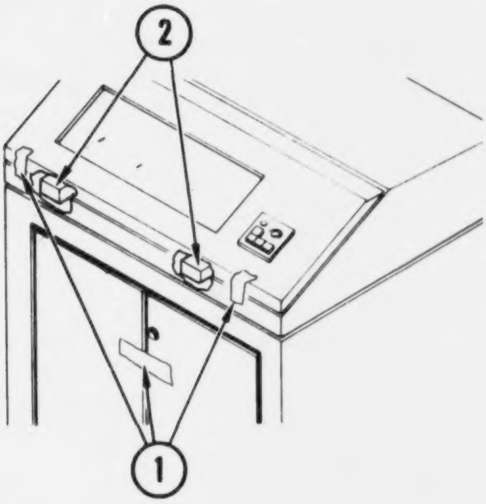
Once the console printer is powered ON the forms thickness knob may have to be adjusted again to insure a good copy is being made.

8. Close access cover.

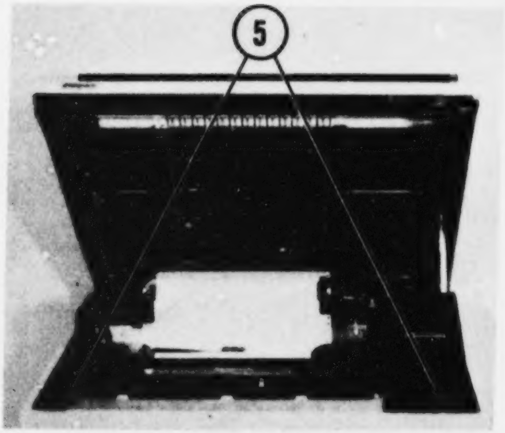
2-39. PREPARE LINE PRINTER FOR OPERATION

INITIAL SETUP

Common Tools	Materials/Spare Parts	Supplies
• Tool kit • Decimal socket set	• Plastic storage bag • Marking pen • Ribbon cartridge • Band	• Pin-feed, fan-fold paper (1 box)

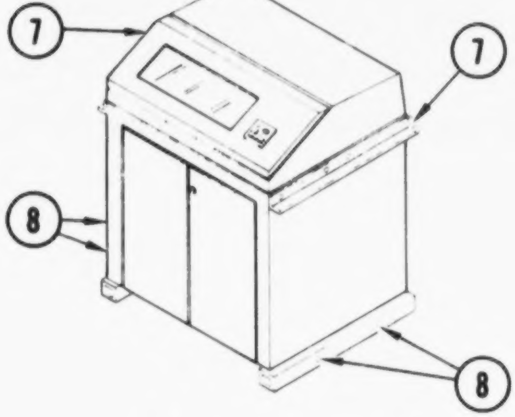


1. Remove tape from lower door and operator door. Raise operator door.
2. Remove and save two cardboard inserts.
3. Cut and remove two tie wraps from hammer bank assembly.
4. Remove tape holding ribbon in place.

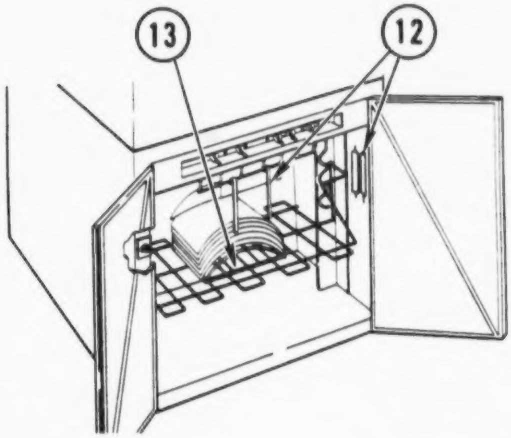


5. Loosen, but do not remove captive screws.
6. Close operator door.

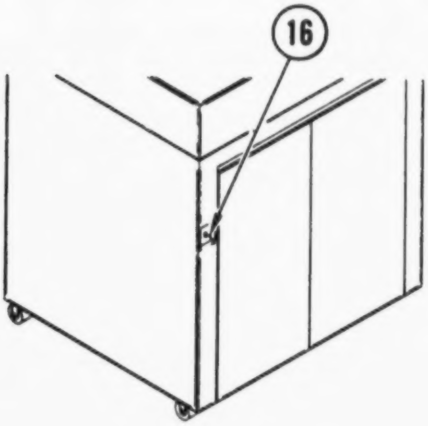
2-39. PREPARE LINE PRINTER FOR OPERATION (CONT)



7. Remove bolts holding line printer to wall. Retain in plastic bag.
8. Remove locking pins from tracks.
9. Slide printer away from wall.
10. Remove tape and open rear doors.
11. Remove tiedown tape and tie wraps from shelf and base.

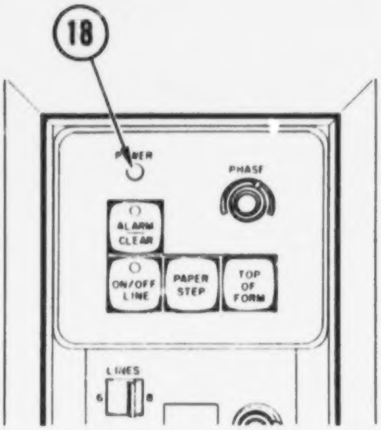


12. Untape plastic paper guides from cabinet wall and clip to paper exit chute.
13. Set paper shelf to desired height and install paper rack.
14. Close rear doors.
15. Check power cord. Ensure it is plugged into ac power outlet.

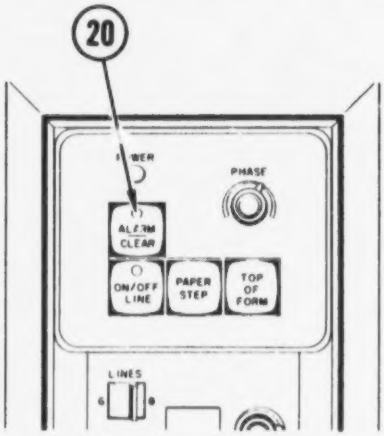


16. On rear corner, set power switch ON if van power is on. If power is not on, do not set switch to ON until there is power.

2-39. PREPARE LINE PRINTER FOR OPERATION (CONT)


18
POWER
PHASE
ALARM CLEAR
ON/OFF LINE
PAPER STEP
TOP OF FORM
LINES
6
8

17. Push printer back against wall.
18. Make sure power indicator is lit.
19. Install paper (TM 11-7025-232-10).


20
POWER
PHASE
ALARM CLEAR
ON/OFF LINE
PAPER STEP
TOP OF FORM
LINES
6
8

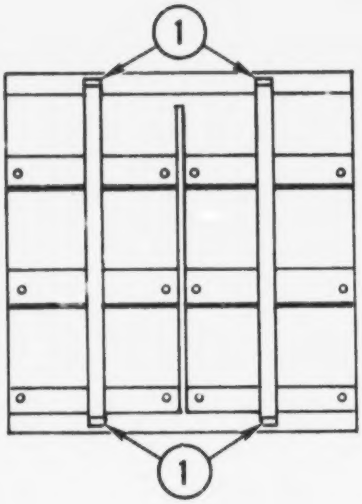
20. Press ALARM/CLEAR switch. ALARM/CLEAR indicator will go out within 3 seconds. If it does not, begin troubleshooting (para 3-7).

2-40. PREPARE DISK DRIVES FOR OPERATION

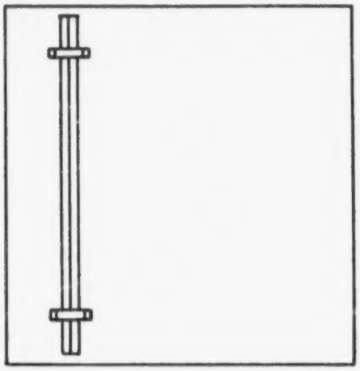
INITIAL SETUP

Common Tools
- Tool kit
- Hex key allen set-decimal

Materials/Spare Parts
- Plastic storage bag



1. At front of disk drive cabinet, remove screws holding shipping bars.
2. Place screws and washers in storage bag and stow.

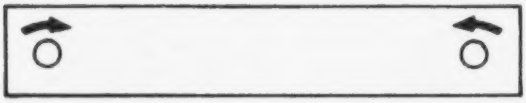


3. Fasten shipping bars to right side of disk drive cabinet with brackets and screws provided.

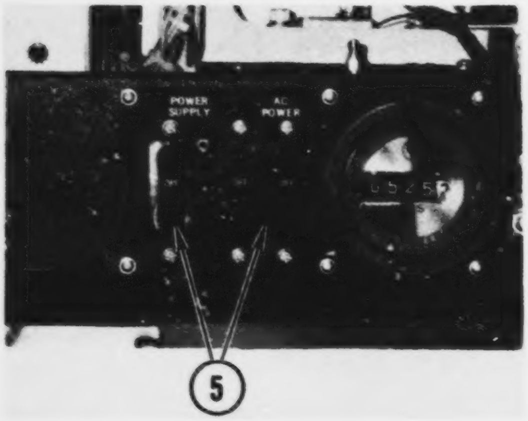
NOTE

The following steps apply to any of the six disk drives.

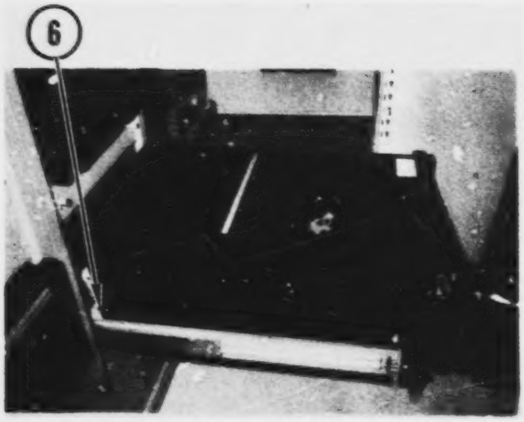
4. At both bottom corners of disk drive drawer, turn locking knobs as shown. Pull out drawer as far as it will go.



2-40. PREPARE DISK DRIVES FOR OPERATION (CONT)



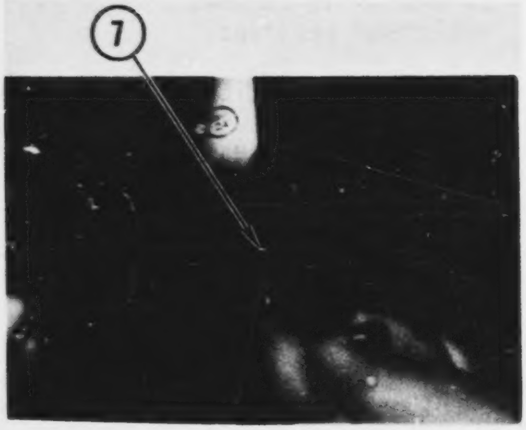
5. At rear of drive, ensure both circuit breakers are OFF.



6. Find two release latches. There is one on each side of cover.

NOTE

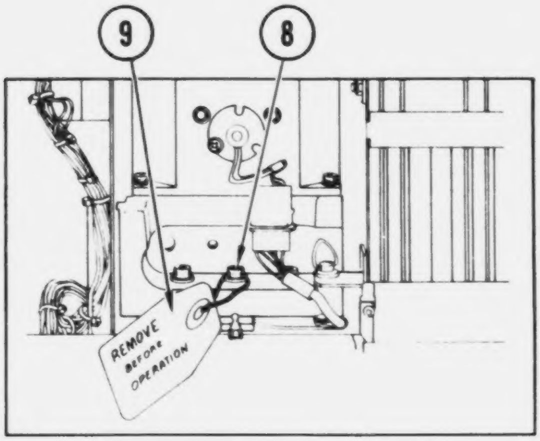
Some disk drives have manual release latches. On other disk drives there is a hex socket latch on one side.



7. Release latches.

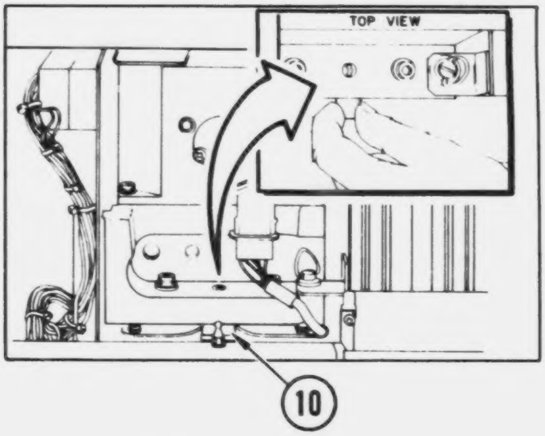
- If both latches are like the one shown, press both as you lift cover
- If one latch is the hex socket type, press catch and turn socket with 7/32-inch hex key as you lift cover

2-40. PREPARE DISK DRIVES FOR OPERATION (CONT)

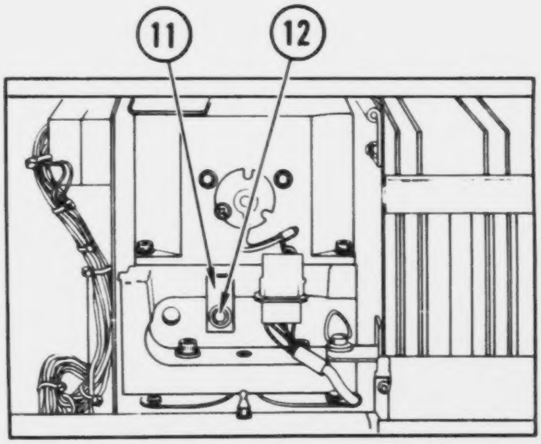

9
8
REMOVE BEFORE OPERATION

8. On the back of drive, locate bolt. Using 3/16-inch hex key wrench, remove bolt.

9. Pull tag off bolt.



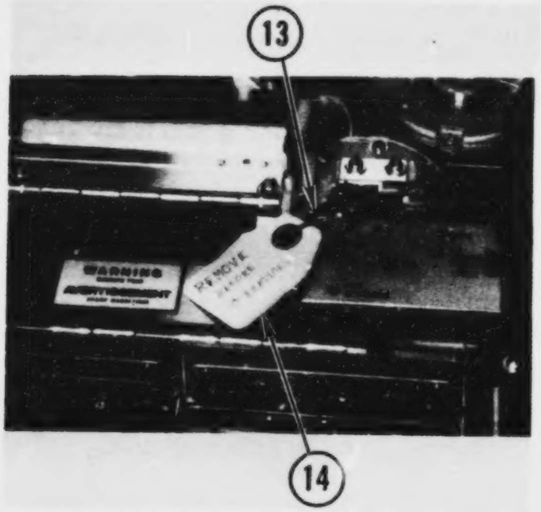
10. Pull out spacer.



11. Line up spacer with hole.

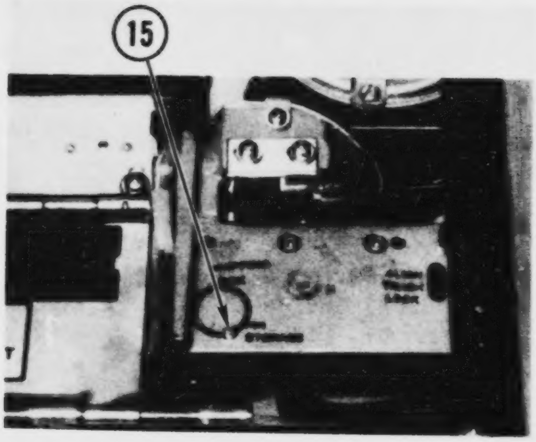
12. Push bolt through spacer. Tighten bolt.

2-40. PREPARE DISK DRIVES FOR OPERATION (CONT)

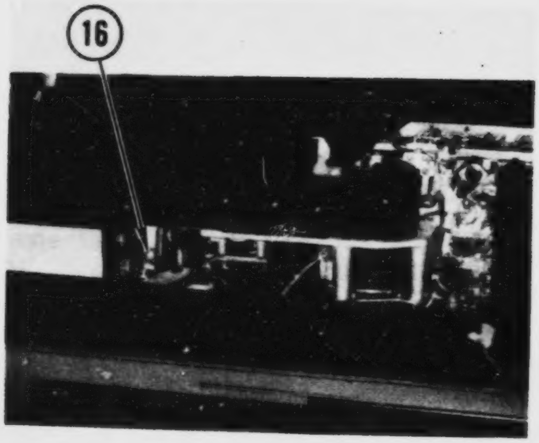

13
WARNING
REMOVE
14

13. On top of drive, pull pin out of shipping hole.

14. Pull tag off pin.

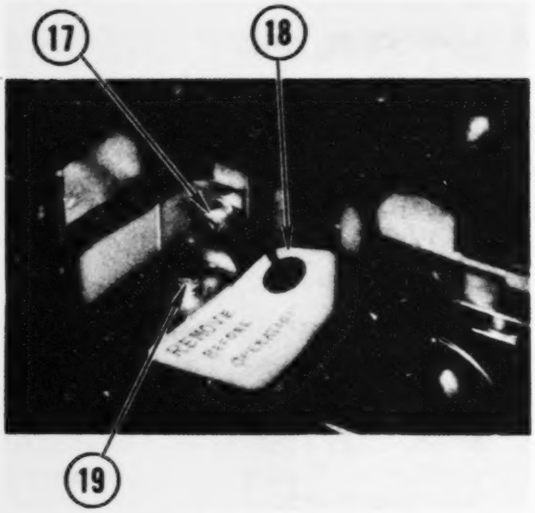


15. Push pin in storage hole.

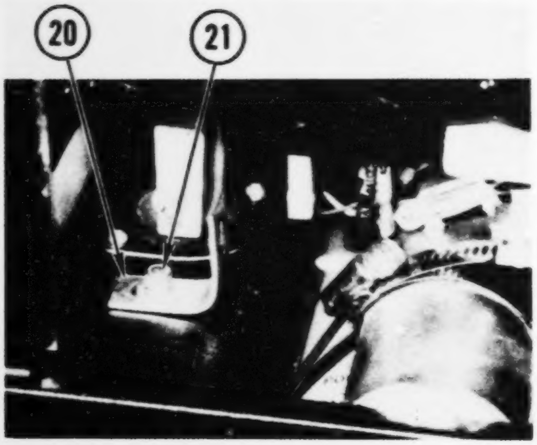


16. On right side of drive, find bracket.

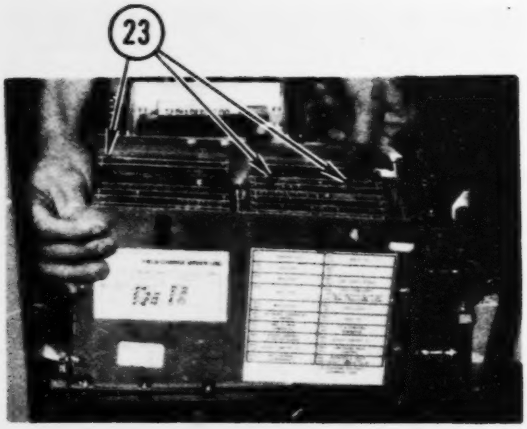
2-40. PREPARE DISK DRIVES FOR OPERATION (CONT)



17. Using 5/32-inch hex key wrench, remove bolt.
18. Pull tag off bolt.
19. Loosen bolt enough to move bracket.



20. Slide bracket as shown.
21. Tighten bolt.
22. Replace bolt.



23. Check logic cage to be sure switch on top edge of each board shown is in position listed below. Boards and switches are marked:

Board	Switch	Position
B01	disable - enable	enable
A04	disable - normal	normal
A10	local - remote	local

2-40. PREPARE DISK DRIVES FOR OPERATION (CONT)

24. Lower cover and snap in place. Set both circuit breakers to ON.

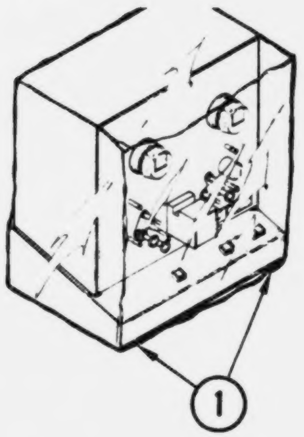
25. Close drawer half way.

26. Load disk pack(s). Do not cycle up. (TM 11-7025-208-10).

NOTE

Load those disk packs you will use for operation, such as the system pack. This will assure that disk packs are stabilized along with drive. The flowing air in the disk chamber will purge dust and moisture from the disks.

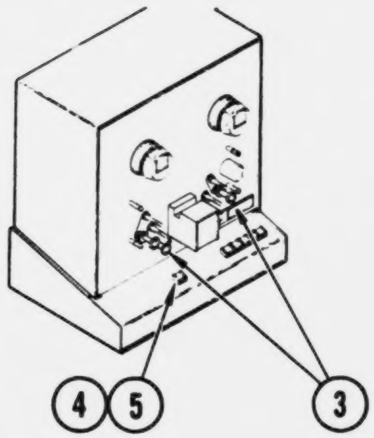
2-41. PREPARE TAPE CLEANER FOR OPERATION



NOTE

If required to clean tapes prior to operating ADP system, do steps 1 thru 7. If not required to clean tapes, disregard this task. It is not a part of system startup.

1. Remove dust cover from tape cleaner.
2. Ensure ac power cord is plugged into outlet.



3. Check tissue spool assembly for worn or nearly empty spools. Replace if necessary (TM 11-7035-203-10).
4. Power on.
5. Clean tapes (TM 11-7035-203-10).
6. When all tapes are cleaned, power off.
7. Replace dust cover.

NOTE

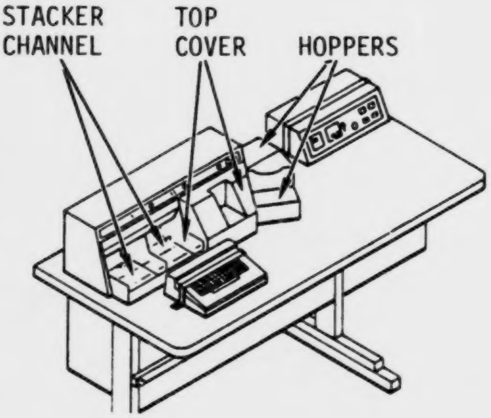
Tape eraser needs no special handling when preparing for movement.

2-42. PREPARE CARD READER/PUNCH FOR OPERATION

INITIAL SETUP

Common Tools
- Tool kit

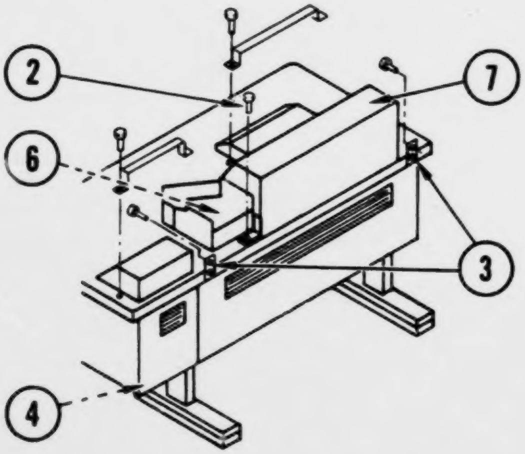
Materials/Spare Parts
- Ink cartridge
- Wait station window
- Parts storage bag
- Pen or pencil



NOTE

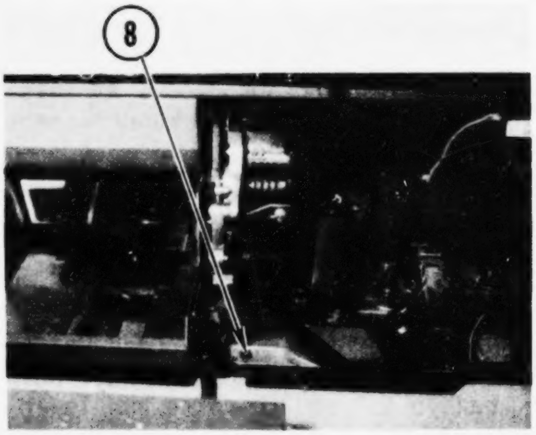
Get a parts bag and mark it "Card reader/punch parts". Retain all parts you remove. Put bag in storage.

1. Remove packing materials:
   a. Pull tape off top cover and hopper paddles.
   b. Remove foam blocks from stacker channels.
   c. Remove foam-backed cards from hoppers.

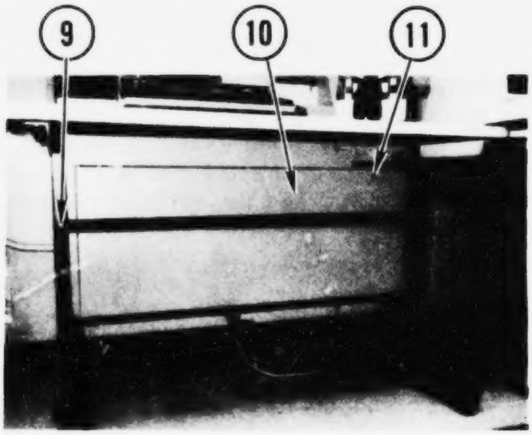


2. Remove L-bracket screw, as shown.
3. Using 7/16-inch socket, remove wall bolts, as shown. Store bolts with spacers.
4. Pull locking pins from slides.
5. Slide device away from wall until it clears overhead tape rack.
6. Loosen hopper screw.
7. Lift visible wait station and then the top cover.

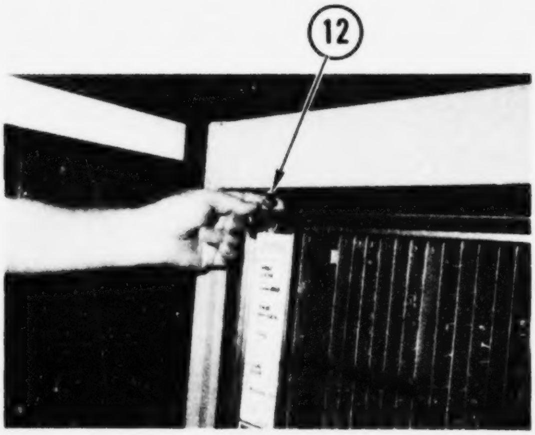
2-42. PREPARE CARD READER/PUNCH FOR OPERATION (CONT)



8. Remove clamp screw.

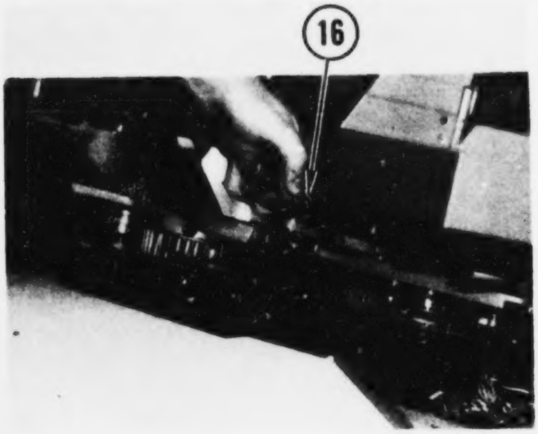


9. Loosen screws. Remove cross bar.
10. Pull out chip box.
11. Turn screws. Pull off front panel.



12. Turn black nylon nut, as shown, until you can raise and then move logic cage in and out.
13. Swing logic cage out.

2-42. PREPARE CARD READER/PUNCH FOR OPERATION (CONT)



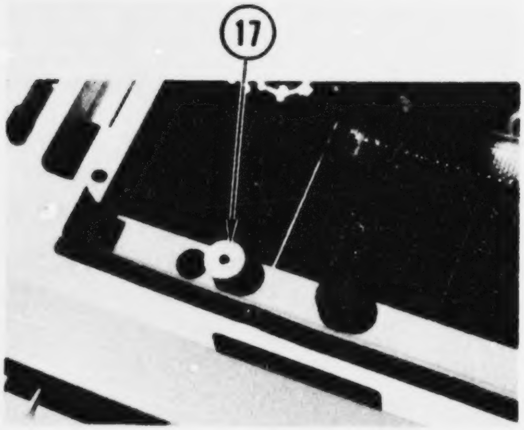
14. Remove nut and washers from stacker base bolt. Ensure bolt moves freely, but do not remove at this time. Store nuts and washers in parts bag.

15. Swing logic cage back into place.

WARNING

Deck assembly is heavy (ensure it is locked in place) and can fall unless handle is used to raise and lower deck.

16. Using handle, raise deck to maintenance position.



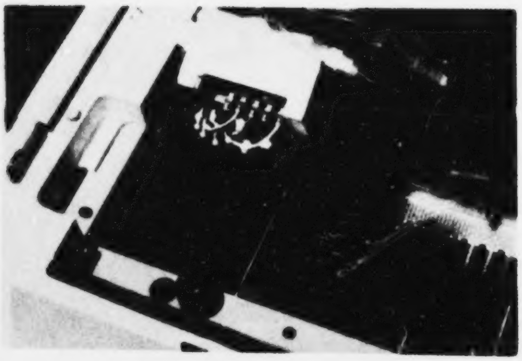
17. Remove metal spacer and place it in parts bag.

18. Remove stacker base bolt and place it with nuts and washers in spare parts bag.

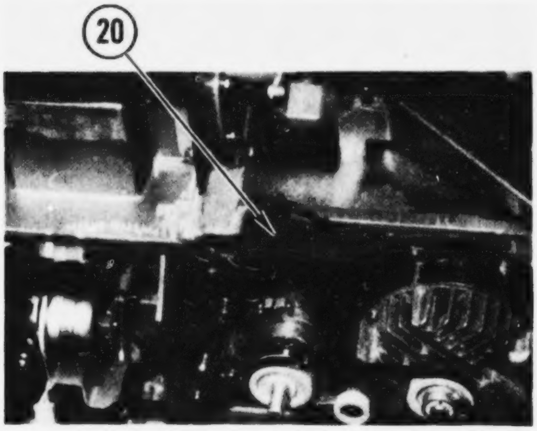
NOTE

Rubber spacer has small nipple on bottom. Put spacer in place and pull gently on nipple from bottom until it locks in place.

19. Move small rubber spacer, as shown.



2-42. PREPARE CARD READER/PUNCH FOR OPERATION (CONT)



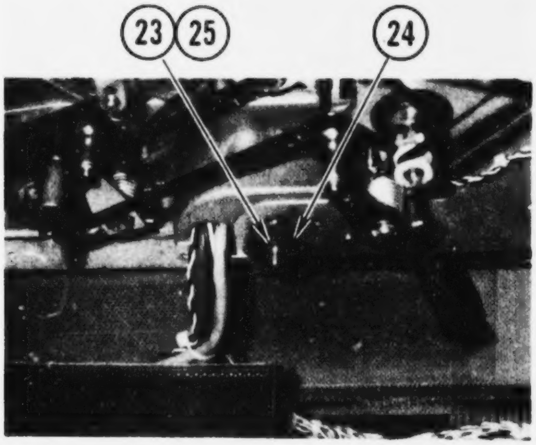
20. Loosen clamp screw.

21. Turn 90° into position.

22. Tighten clamp screw.

NOTE

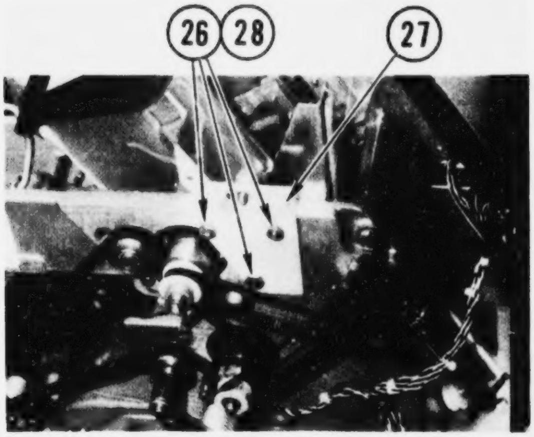
There is a U-clamp on each damper spring. The U faces out for operation.



23. One at a time, remove U-clamp nuts.

24. Turn over two U-clamps.

25. Replace and tighten nuts.

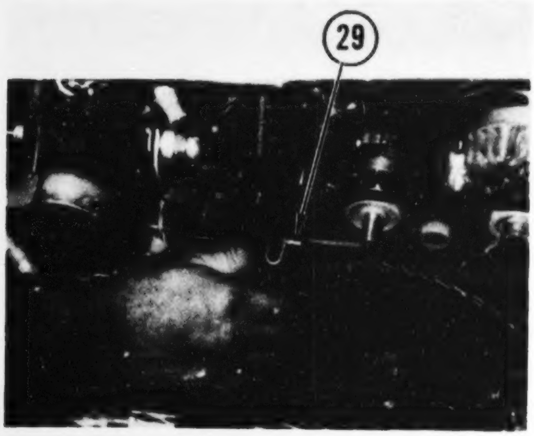


26. Remove three bracket nuts, bolts, and washers.

27. Remove bracket.

28. Put nuts, bolts, and washers back in place.

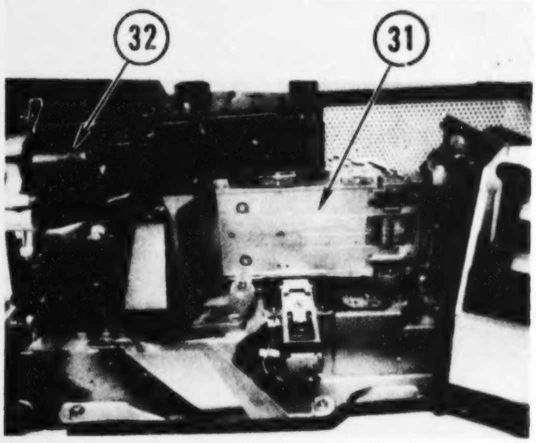
2-42. PREPARE CARD READER/PUNCH FOR OPERATION (CONT)



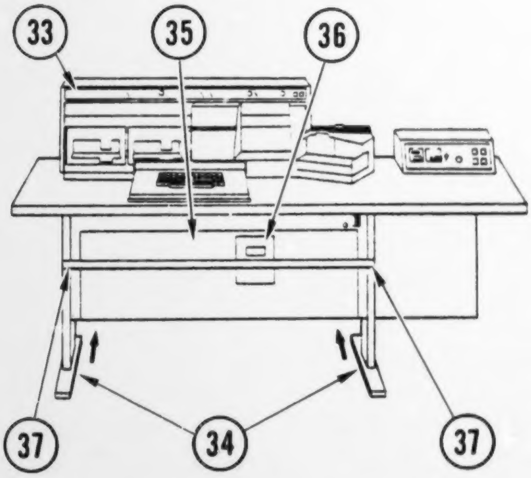
WARNING

Deck assembly is heavy and can fall unless handle is used to raise and lower deck.

29. Push in button on side of clamp. Lower deck to operating position.

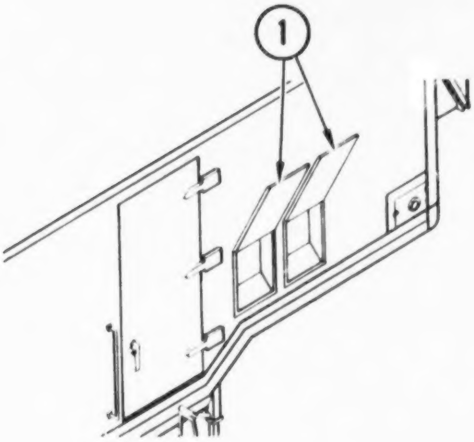


30. From storage, get visible wait station window and ink cartridge.
31. Press on window.
32. Remove tie wrap from inker arm, replace ink cartridge and twist cover open.



33. Lower top cover and visible wait station window.
34. Slide device against wall.
35. Install front panel.
36. Install chip box.
37. Install cross bar.

2-43. INSTALL SIGNAL LINES



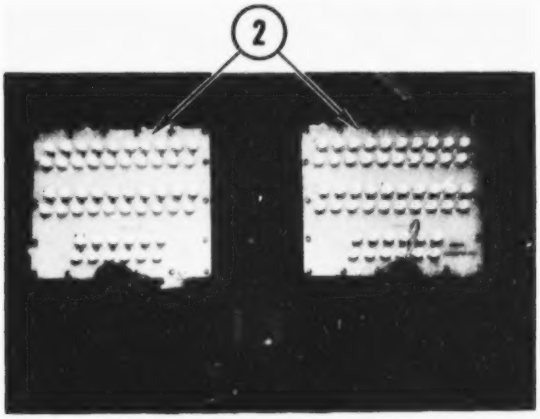
1. Outside van at signal entrance panels, lift either door and look at the connectors inside.

NOTE

Panel on your right is TACTICAL (A) panel. Panel on your left is REMOTE (B) panel.

2. To install wires in either panel, go to Part A of this task.

3. To install cable in either panel, go to Part B of this task.



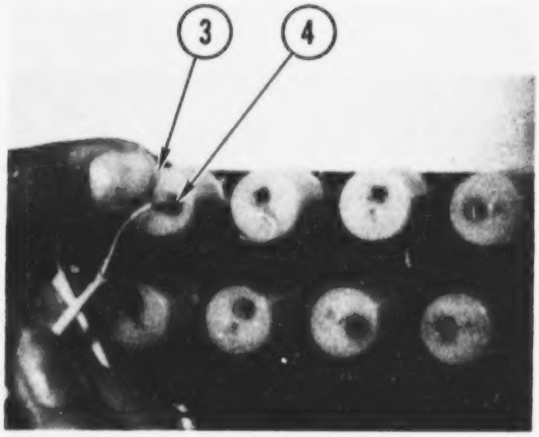
2-43. INSTALL SIGNAL LINES (CONT)

Part A

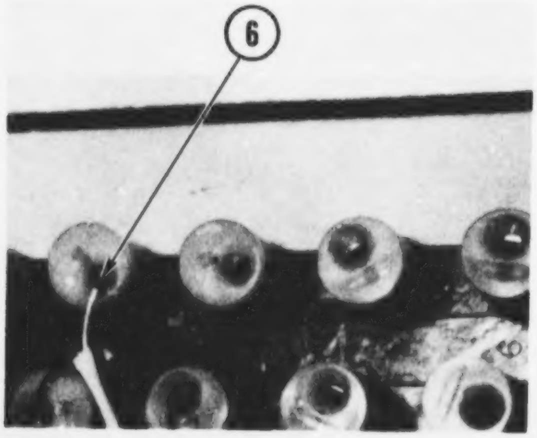
NOTE

See next page for illustration of wire positions. Follow the steps below to install wires.

1. Straighten end of wire.
2. Make sure insulation is cut away 1/2 to 3/4 inch from end of wire.

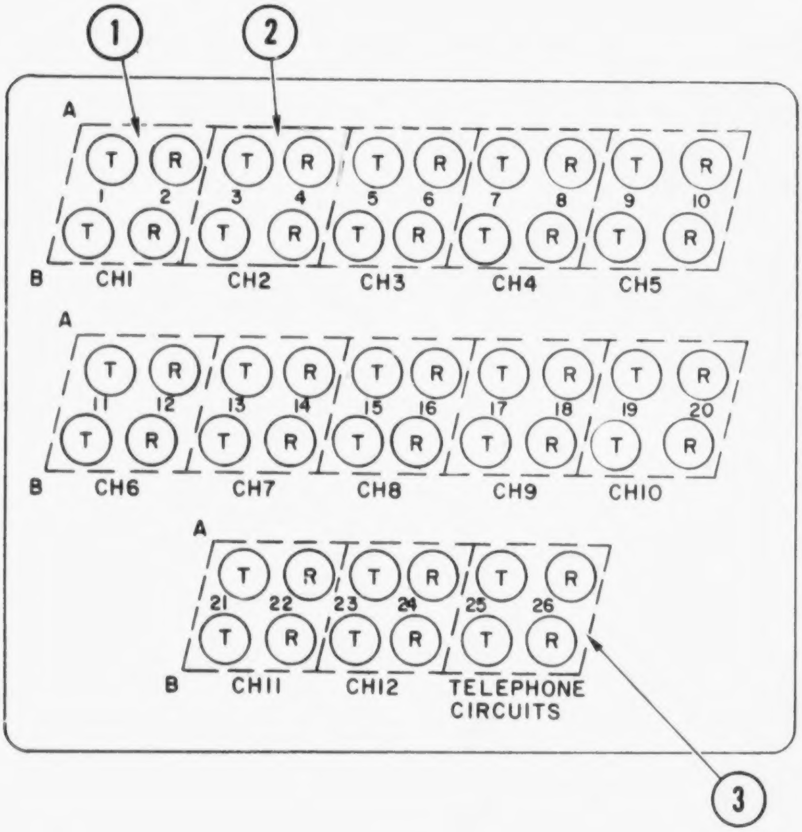


3. Press binding post.
4. Push wire in hole.
5. Let go of post.



6. Gently pull wire to make sure it is secure. If wire pulls out, repeat procedure.

2-43. INSTALL SIGNAL LINES (CONT)


①
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CH2
CH3
CH4
CH5
CH6
CH7
CH8
CH9
CH10
CH11
CH12
TELEPHONE CIRCUITS

NOTE

Both the A and B cabinets are configured the same at the signal entrance panels. Each channel is accessed through the transmit/receive binding posts which are numbered on the panel.

1. For example, Channel 1 is accessed through binding posts 1 and 2. Channel 2 is accessed through binding posts 3 and 4. If a two wire configuration were to be used to access Channel 1, lines would be connected to binding posts 1A and 1B. When a four-wire configuration is used, wires will be connected to:

   1A, 1B TO TRANSMIT
   2A, 2B TO RECEIVE

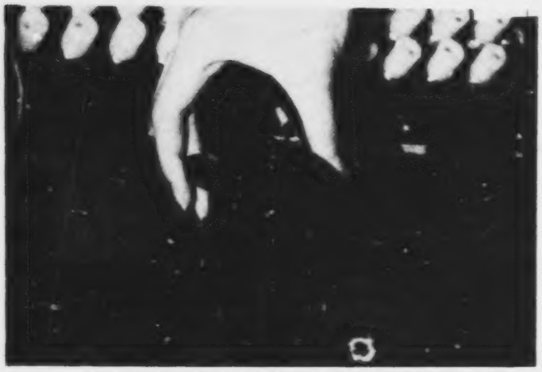
2. Channel 2 is accessed in a similar manner.

3. Telephone Lines:

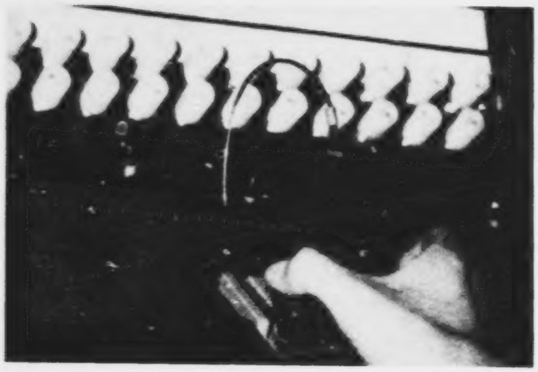
   Pairs 25A, 25B and 26A, 26B are for telephone circuits.

2-43. INSTALL SIGNAL LINES (CONT)

Part B



1. Turn connector lock, as shown.

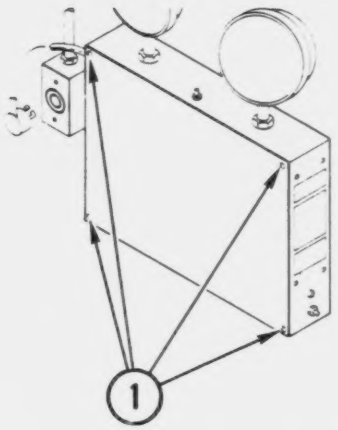


2. Lift off cover.
3. Push signal line connector on outlet. Make sure it seats even and no pins are bent.
4. Turn connector lock.

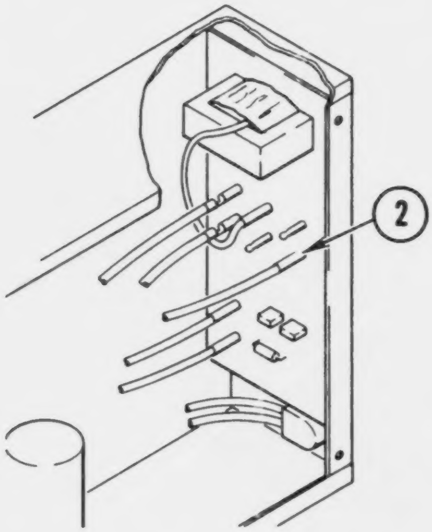
2-44. PREPARE EMERGENCY LIGHT FOR OPERATION

INITIAL SETUP

Common Tools
- Tool kit

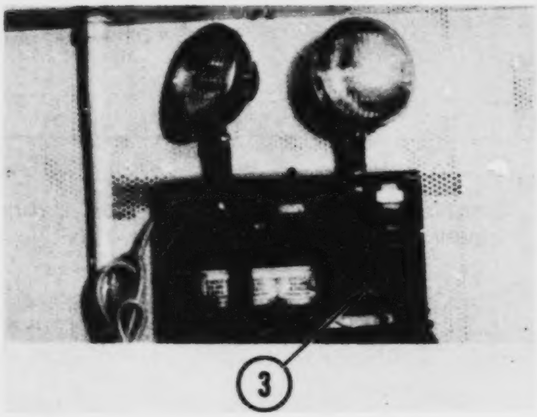


1. Remove cover plate screws and remove cover plate.

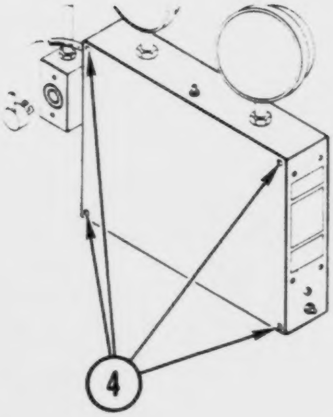


2. Plug blue wire into printed circuit board. Slot is color coded blue on circuit board.

2-44. PREPARE EMERGENCY LIGHT FOR OPERATION (CONT)



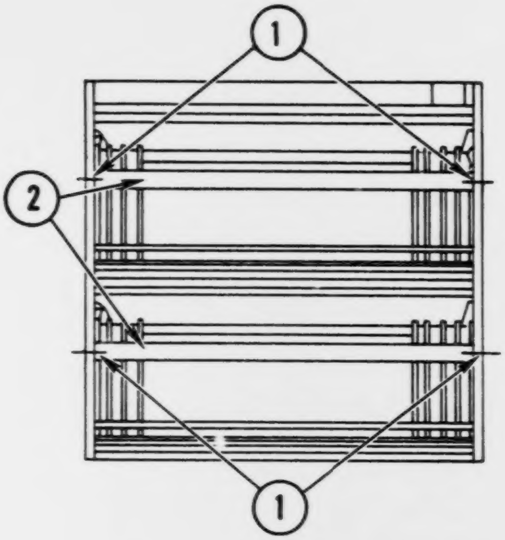
3. Connect ON/OFF switch wire to remaining battery pack wire.



4. Install cover plate.

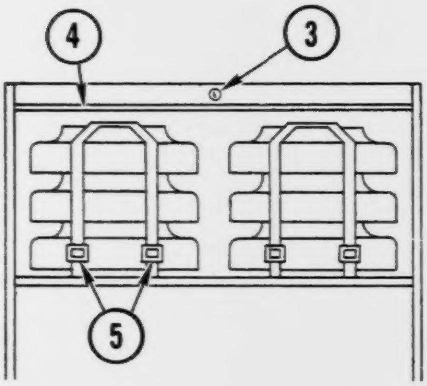
5. Plug cord into outlet.

2-45. UNSTRAP TAPE REELS AND DISK PACKS/OPEN STORAGE CABINETS



1. At each tape storage rack, remove retaining pins holding retaining bar to rack.

2 Remove retaining bar and store on shelf under tapes. Replace pins in holes.

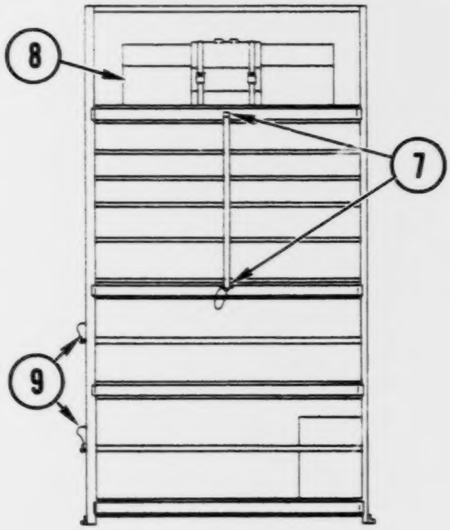


3. Unlock disk pack storage cabinet.

4. Raise shelf doors and slide them back.

5. At each stack of disk packs, unbuckle both straps.

6. Place ends of straps on shelf.



7. At spare parts cabinet, remove retaining clip and bar. Store them in spare parts cabinet.

8. Unfasten restraining belt from around vacuum cleaner if it will be used.

9. Remove retaining clips and bar from lower part of cabinet. Store them in spare parts cabinet.

2-46. SYSTEM STARTUP

Note that a distinction is made between startup and operation. Once the van temperature has reached 65° - 85° F, and the van humidity has reached 20% -50%, you then start up the ADP equipment but let it sit for one hour before you operate it.

Paragraphs 2-11 thru 2-45 told you how to install and prepare all the system components for operation, and how to stabilize the environment.

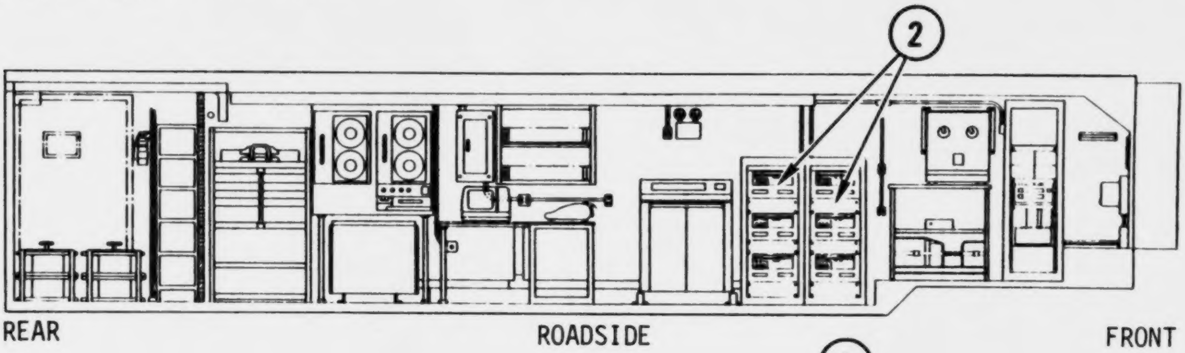
The next step consists of starting up all the system components. Note that there are three startup modes:

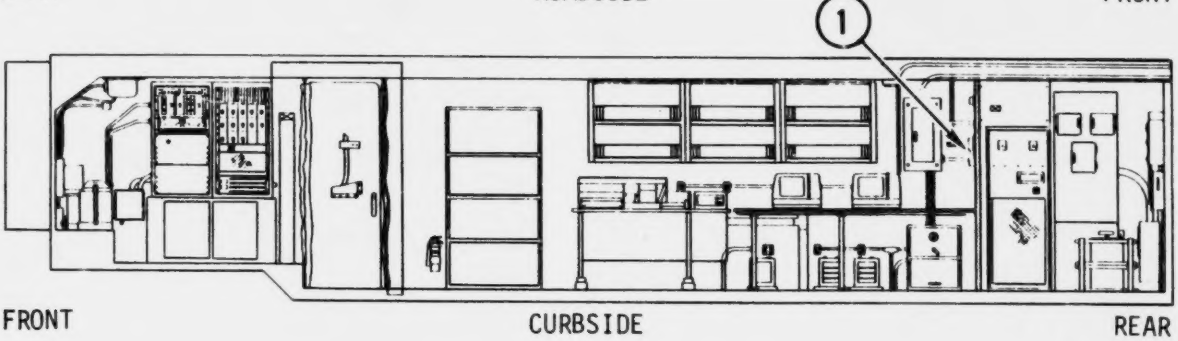
a. Startup after Emplacement/Long-term Shutdown. Emplacement is defined as preparing the system for operation after moving it to a new site. A long term shutdown is defined as any time the van is completely powered off (para 2-85 thru 2-87) longer than 48 hours, but not prepared for movement. Only those ADP components required for your job are run through startup tests and readiness checks.

b. Startup After Short Term Shutdown. A short term shutdown is defined as any time the ADP is completely powered off between shifts, but the environmental subsystem is left on. This maintains the environment for fast restart of data processing activity. The real time clock and memory save in the CPU are never turned off during a short term shutdown.

c. Startup After a Power Failure. Startup after failure/power resumption is considered an unusual operating condition and is covered in paragraph 2-71.

2-47. START UP THE SYSTEM





NOTE

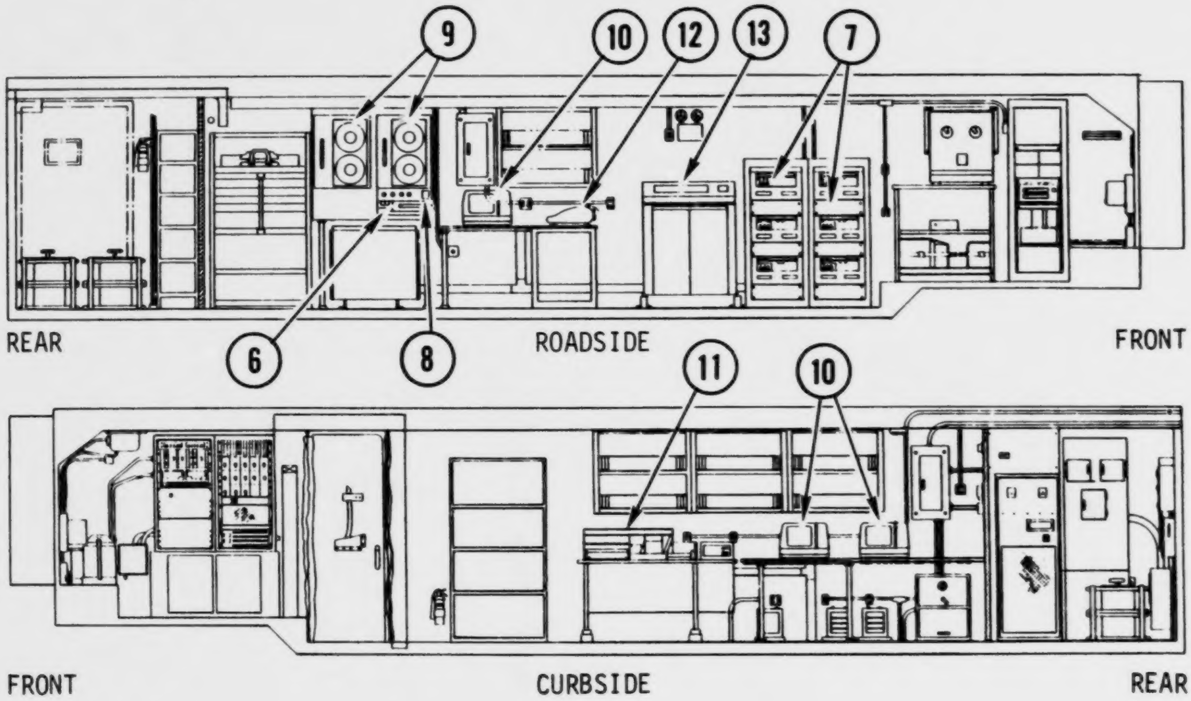
> Use this procedure to start up the ADP devices after the van has been moved to a new site or after a long-term shutdown. The steps are arranged in order. Remember that power ON (para 2-31 thru 2-33) and stablization (para 2-34) were started earlier. After short term shutdown, do steps 2 and 4 thru 27.

1. Monitor hydrometer and note time van temperature came within 65°F (warm up mode) or 80°F (cool down mode).
2. Load disk packs you will use and allow them to purge (TM 11-7025-208-10). Do not cycle up at this time.
3. Wait until van environment has stabilized (para 2-34) at temperature range of of 65°-85° for one hour, and humidity range of 20% - 50%, before going to step 4.

CAUTION

> ADP equipment requires steady ac power. Always use frequency converter for 50 cycle operation or when commercial power is not well regulated or is not correct within 5% of 60 cycles. After any power interruption, (para 2-71) wait 15 minutes before turning on ADP equipment. Circuits may be damaged unless they are allowed to cool at least 15 minutes before restarting.

2-47. START UP THE SYSTEM (CONT)



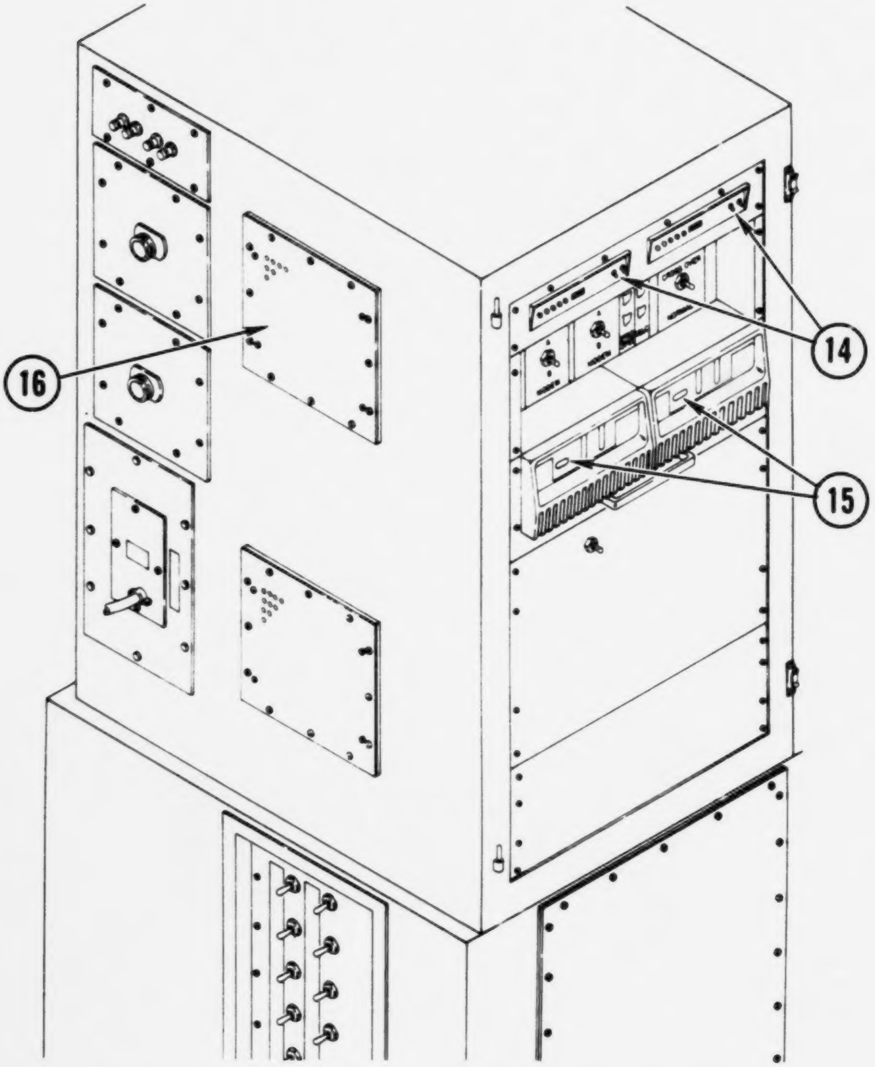
4. Access and power ON CPU (TM 11-7021-200-10). Ensure real time clock is turn on.
5. Run CPU QLTs (TM 11-7021-200-10).
6. Watch for the following three events:
   a. REGISTER to display E0 00002
   b. TRAFFIC indicator light to go off
   c. CHECK indicator light to go off
      - If all these events occur, go to step 7
      - If any of these events does not occur, then run QLTs again
        - If all these events occur, go to step 7
        - If any of these events still does not occur, run the extended QLTs (para 3-23).
7. Cycle up the disk drives (TM 11-7025-208-10) one at a time, waiting for a READY light before cycling up the next drive.
8. On power distribution unit above CPU control panel, set circuit breaker ON.
9. Load tape drives and Power them ON if they are to be used.
10. Power ON the console and both I/O terminals. Set in REMOTE mode (TM 11-7035-204-10).

NOTE

If card reader/punch is to be used, start it now.

11. Power ON card reader/punch (TM 11-7040-200-10).
12. Power ON console printer and run self test (para 2-52).
13. Power ON line printer and run self test (TM 11-7035-200-10).

2-47. START UP THE SYSTEM (CONT)



NOTE

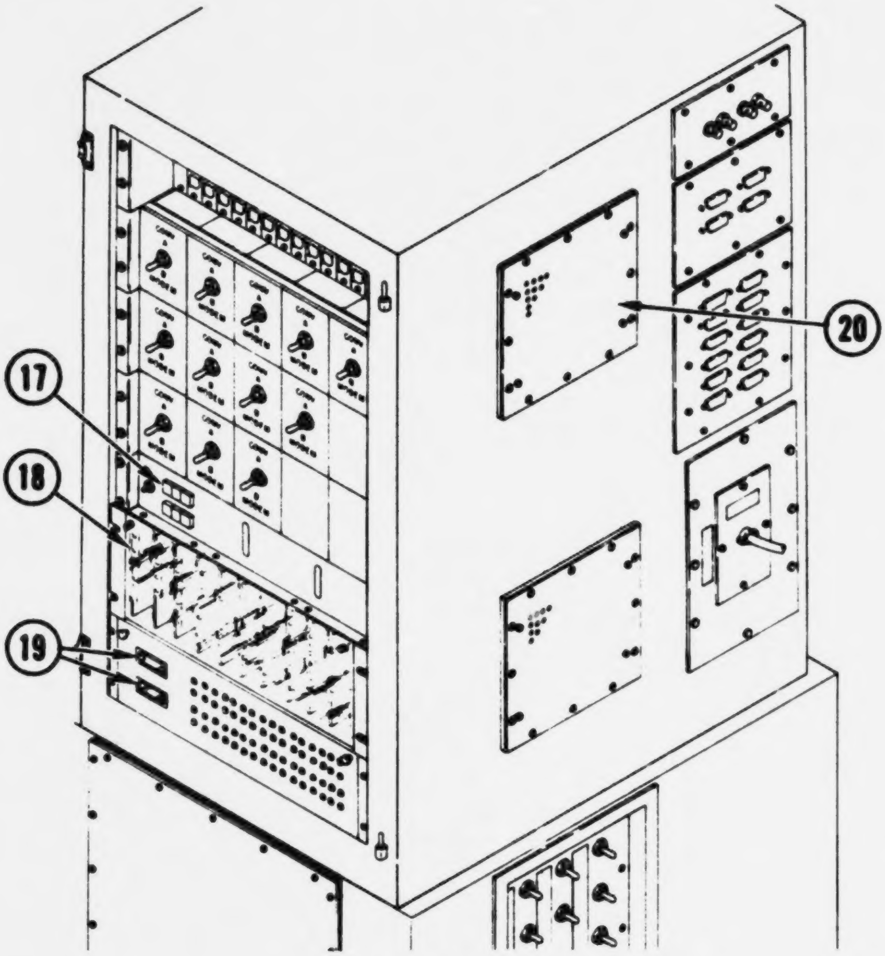
Do steps 14, 15, and 16 at communications cabinet A.

14. Check that the power indicators are lit for both 1900G converters.

15. Check that the power indicators are lit for both V.29 modems.

16. Check that fan on the side of cabinet A is running by listening or feeling air circulation.

2-47. START UP THE SYSTEM (CONT)



NOTE

Do steps 17, 18, 19 and 20 at communications cabinet B.

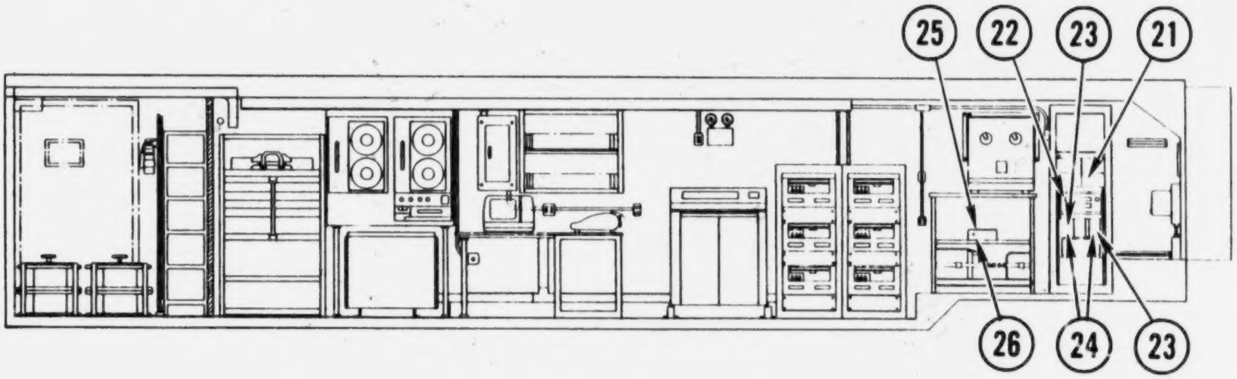
17. Press each button (VOICE, SEND DATA, RCV DATA) on the voice/data unit to check that button indicators light.

18. Check that POWER indicators are lit for each board in the 600GR Converter Assembly.

19. Check that both power indicators are lit on the power supplies of the quasi-analog modem.

20. Check that the fan on the side of cabinet B is running by listening or feeling air circulation.

2-47. START UP THE SYSTEM (CONT)



NOTE

Do steps 21, 22, 23, and 24 at crypto cabinet. Do steps 25 and 26 at the 103J modem, which resides in the bulk storage cabinet.

21. Check that red indicators are lit on isolators.
22. Check that the red power indicator is lit for the TLC.
23. Check that the AC POWER ON/OFF switch is set to ON for the CAU.
24. Verify that the yellow power indicator on the CAU is lit.
25. Check that the POWER ON/OFF switch on the back of the 103J modem is ON.
26. Check that the red power indicator on the front of the 103J modem is lit.
27. Start up is now complete. Go to the operational readiness checklist (para 2-50).

2-48. SYSTEM SHUTDOWN

Shutdown is defined as anytime the van has been powered down and the ADP devices are powered off at their individual ON/OFF switches.

There is a distinction between a long-term shutdown and a short-term shutdown. In a long-term shutdown you completely power off the van, the ADP devices and the environmental subsystem. You also power off the memory save and the real time clock in the CPU.

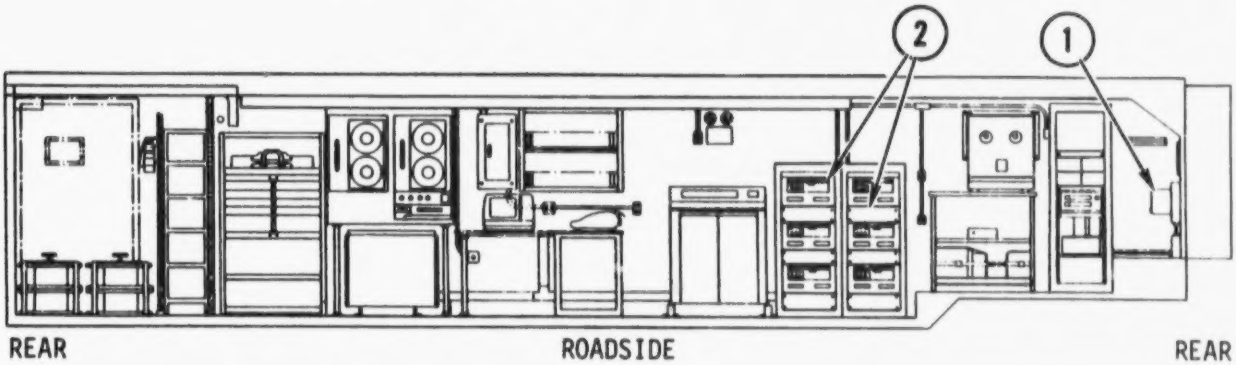
A short-term shutdown (between shifts for example) involves powering off the ADP devices at their ON/OFF switches and cutting technical and utility power. However, the environmental subsystem is left on to enable quick start up for the next shift.

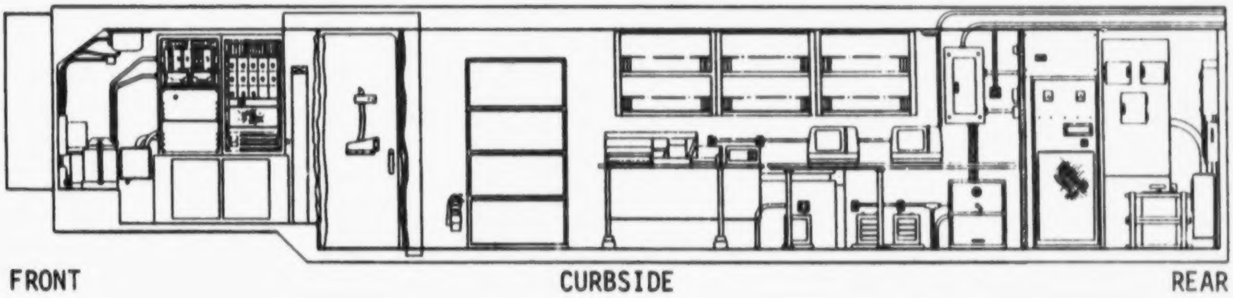
Shutdown after a power failure is covered in paragraph 2-109.

Before shutdown, always observe good housekeeping practices:

- Make sure all surfaces have been vacuumed free of dust and dirt
- Make sure all noise hoods and air conditioners have been cleaned
- Make sure there is no buildup of dirt or moisture around electrical equipment

2-49. SHUTDOWN THE SYSTEM





NOTE

For long-term shutdown, do steps 1 thru 14. For short-term shutdown, do steps 2 thru 10 and 13.

1. Set air conditioners to OFF, set humidifier to OFF.

2. Cycle down disk drives one at a time.

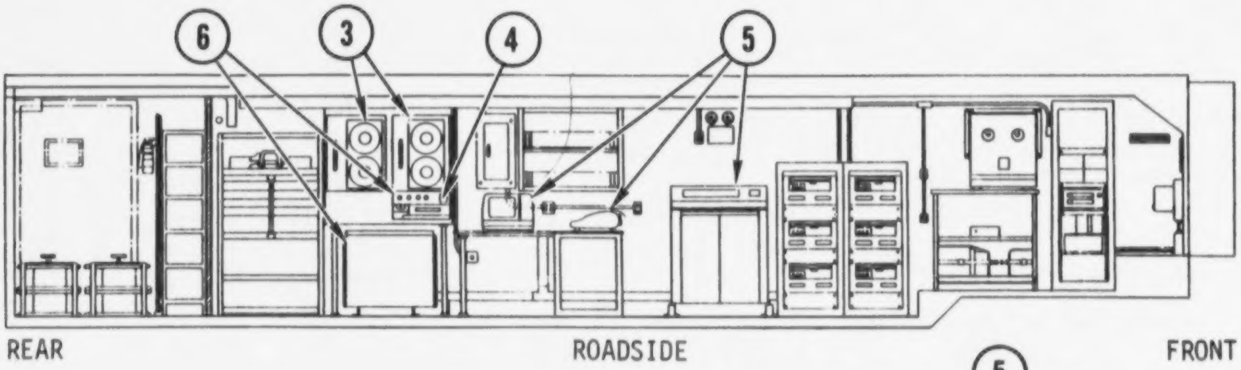
   a. Press START button. START and READY indicators will go out.

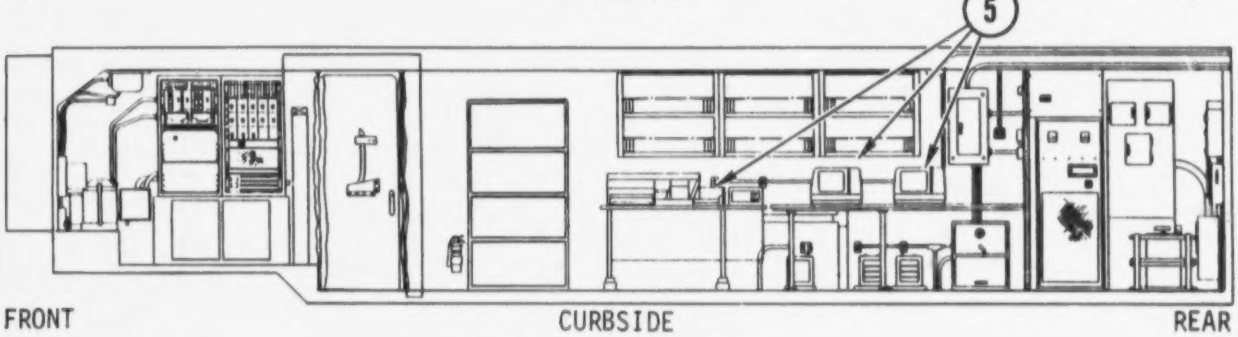
   b. Wait one minute, when disk drive stops, remove disk pack.

   c. Repeat steps a and b for each disk drive.

   d. Store disk packs in disk pack storage cabinet.

2-49. SHUTDOWN THE SYSTEM (CONT)





3. Power OFF tape drives, remove tapes and store.

4. Power OFF PDU below tape drives.

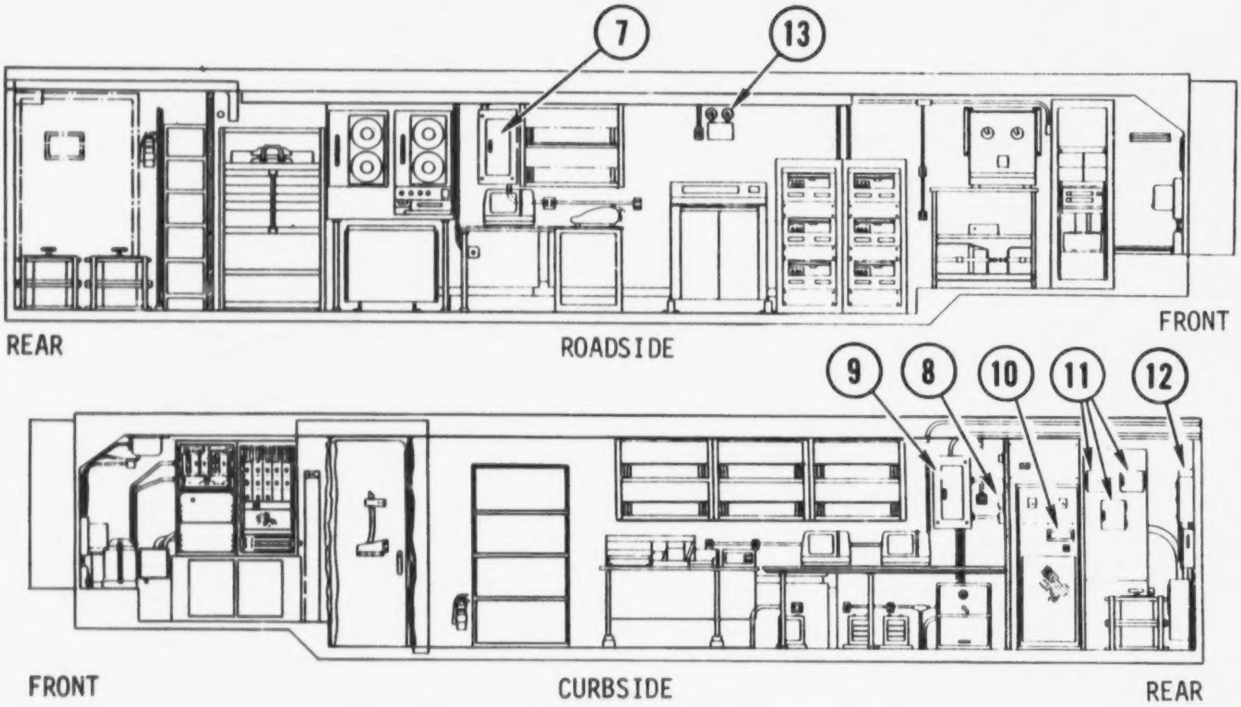
5. Power off at their individual device switches:

   - Card Reader Punch
   - Line Printer
   - Console Terminal
   - Console Printer
   - Both I/O Terminals

6. Power OFF CPU at control panel.

   a. Unlock panel security switch
   b. Pull CPU away from wall
   c. Open front door
   d. Power OFF PDU
   e. Set real time clock switch to OFF
   f. Set memory save switch to OFF

2-49. SHUTDOWN THE SYSTEM (CONT)


7
13
REAR
ROADSIDE
FRONT
9
8
10
11
12
FRONT
CURBSIDE
REAR

7. Set technical power circuit breakers to OFF.
8. Set inside lights to OFF.
9. Set utility power circuit breakers to OFF.
10. Set frequency converter switch to OFF if it was in use.
11. Set main circuit breakers to OFF.
12. Press OFF button in control and monitor box.
13. Set emergency light to OFF.
14. Shutdown is now complete.

2-50. CHECK FOR OPERATIONAL READINESS

Before you begin operation, make one last check (table 2-5) to assure that all components are ready to operate. This will help avoid down time and false starts.

Table 2-5. Component Readiness Checklist

Component or Device	Readiness Indicators
Power Arrestor Boxes (2 each)	All six indicators on each box lit.
Power Control Box	Correct frequency and voltage is selected, and indicated on meters.

IF SET AT THIS FREQUENCY	THEN FREQUENCY METER SHOULD SHOW THIS	AND VOLTAGE METER SHOULD SHOW THIS
60 Hz	60-63 Hz	117-120 V
50 Hz	47-50 Hz	117-120 V

Frequency Converter	Output meters indicate steady 117 V and 60 Hz, and LED indicators on power modules are lit. OVER CURRENT and OVER TEMPERATURE indicators are not lit.
CPU	Memory Save/Auto restart circuit breaker ON. RESET light ON. RTC battery switch ON. Power supply fans running.
CPU Control Panel	POWER switch ON. DC ON indicator lit. LAF Mode indicator lit. REGISTER indicates E0 00002. Tapes loaded, if tapes are to be used.
Tape Drives (2 each)	LOAD button lit. ON LINE button lit. Cabinet fans running.
I/O Terminals (2 each), Console Terminal	Status line visible on line 25. Cursors visible on CRT screens. Power ON, DATA SET READY indicators on keyboards lit. Brightness adjusted. Fans running.
Hygrometer	Temperature reading within 65° - 85°. Humidity reading within 20% - 50%.

Table 2-5. Component Readiness Checklist -- Continued

Component or Device	Readiness Indicators
Card Reader/Punch Operator Panel	Column position and READY indicator lit.
Card Reader/Punch Confronter Panel	ON and ON LINE indicators lit.
Console Printer	PPI lit and indicating print position 001. Sufficient paper supply.
Line Printer	Power ON, motor running. ON LINE light ON. Fan running. Sufficient paper supply.
Disk Drives (6 each)	Disk packs loaded and cycled up. Fans running.
600GR Converter Assembly (2 each)	POWER indicators lit on all boards.
V.29 Modems (2 each)	POWER indicators lit.
Fan (cabinet A)	Fan running.
Voice/Data Unit	Either (VOICE, or SEND DATA, and RCV DATA) indicators lit on each row.
1900G Converters (2 each)	Power indicators lit.
Quasi-Analog Modem Assembly	Power indicators (2) lit.
Fan (cabinet B)	Fan running.
Air Conditioners	Air is circulating from registers and is cool or warm according to requirements.
Humidifier	Water filled. POWER indicator lit on control box.
Isolators	All red indicators lit.
TLC	Power indicator lit.
CAU	Power indicator lit.
103J Modem	Power indicator lit.

2-51. OPERATING PROCEDURES

Operating the DAS3 (D/C) system includes the following:

- Using the GCOS6 MOD 400 Executive software to control, modify, send, or receive data
- Using the peripheral data processing devices to accomplish the job
- Using the support equipment needed to keep the ADP system functioning

Each DAS3 (D/C) is shipped with the following software contained on disk packs:

- GCOS6 MOD 400 Executive System Pack
- SMUPAC containing all the test and verification software needed to isolate errors in the system

a. GCOS6 MOD 400 Executive System. All software application programs used in the DAS3 (D/C) work in conjunction with the GCOS6 MOD 400 Executive which is referred to as the systems software. Built into the system software are a number of key routines which work behind the scenes for you to help you get the job done. These include:

(1) Task Manager. This part of the software handles the order in which tasks will be performed within the system. It responds to requests placed against it, processes requests to activate tasks, returns control to interrupted tasks and recorders, suspends, and terminates tasks.

(2) Clock Manager. It handles the timing required to perform tasks.

(3) Memory Manager. It controls requests for memory or working space in the CPU and returns unused memory to a memory pool.

(4) Trap Manager. It acts as a fail safe to keep you from losing data in the event of hardware errors or problems in task performance.

(5) Operator Interface Manager (OIM). It compiles all messages regarding data processing requests sent from the peripheral devices to the console terminal and permits you to prioritize them.

(6) Listener. It keeps you current on what peripherals are off line or on line at any given time. The listener will alert you when a peripheral device goes off line or comes back on line.

(7) Login. This element, usually activated by your supervisor, identifies you to the system and permits you to use it.

(8) Command Processor. It processes all the commands entered into the ADP system and carries them out by assigning tasks to other software components.

(9) Message Facility. It uses the mailbox element for sending/receiving messages between DAS3 (D/C) and remote terminals.

b. Additional Software. In addition to the executive software, the system pack also contains:

(1) File System Software. It controls storage and retrieval of information within data files.

(2) Utility Software. It performs general data processing functions such as transferring data files from a disk to a tape, or merging two separate sets of data into one program or file.

(3) Communications Software. It enables you to communicate with other DAS3 (D/C) operators, IBM computers, and interactive remote terminals. It can automatically dial and answer the phone for you (auto call/auto answer).

c. Operation of Support Equipment. As a DAS3 (D/C) operator you will be called on to use support equipment such as the tape eraser, the tape cleaner and the decollator. Operator's manuals are available for each of these devices. Appendix A contains a list of these manuals. Operating instructions for subsystems which support ADP operation such as the power subsystem are in this manual.

d. Operation of Peripheral Device. Operator's manuals for all peripheral devices except the console printer are available. Appendix A contains a list of these manuals. Operating instructions for the console printer are in this manual.

e. Data Processing. Each application program will have different procedures for you to follow. You will get this information from your supervisor. Some parts of the routine for system set up such as bootstrapping (para 2-53), and login (para 2-54) remain the same regardless of the application program you are using. Appendix E contains information on job processing, task groups, command concepts, file system concepts and other information you need to manipulate, transfer or receive data.

f. Data Transfer. Data transfer to or from remote devices will become easier for you as you become more familiar with the information contained in appendix E. Your DAS3 (D/C) can communicate with other DAS3 (D/C) units and IBM remote computers by either direct line (para 2-56 and para 2-58) or by using autocall (para 2-60).

Direct line communication to another DAS3 (D/C) can be established either through the A cabinet or the B cabinet. In A cabinet, connection is made using either 1900G converter (up to 2 km) or V.29 modem (up to 10 km).

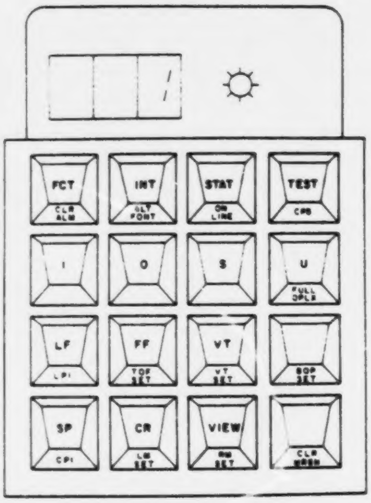
In B cabinet, communication is made by removing the modem board in slot 13 of the quasi-analog modem assembly and replacing it with an RM-201B modem board. Boards in slots 14 thru 16 are not replaced.

Direct wire communication to another DAS3 (D/C) through B cabinet requires your system administrator to reconfigure the configuration load manager (CLM) user file and your system configuration (CONFIG) file. The RNP software must also be reconfigured to reflect new baud rates. This is not an operator function.

In order to transfer or receive data to or from another DAS3 (D/C) or an IBM computer you and the operator at the other end must establish a link between your respective CPUs with the Operator Link Control (OLC) commands. The procedures for establishing or enabling a link to another CPU and its corresponding disabling command are contained in appendix E. Once you have established this link you will transfer or receive data by using the Remote File Facility (RFF) commands which are part of the Remote Network Program (RNP). When transferring or receiving data between your DAS3 (D/C) and an IBM computer you will use the Transmission File Utility (TRANB) command.

Paragraphs 2-53 thru 2-71 contain the information and procedures you will need to set up your hardware for data transfer. Appendix E provides you with the software commands you will need to accomplish the job of data transfer.

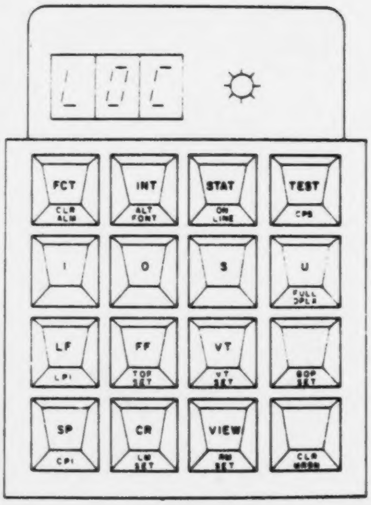
2-52. BRING CONSOLE PRINTER ON LINE/OFF LINE


1
FCT
CLR ALM
INT
ALT FONT
STAT
ON LINE
TEST
CPS
I
O
S
U
FULL DPLX
LF
LPI
FF
TOF SET
VT
VT SET
BOF SET
SP
CPI
CR
LM SET
VIEW
RM SET
CLR MRGN

1. Power on the console printer. PPI register will indicate 1.

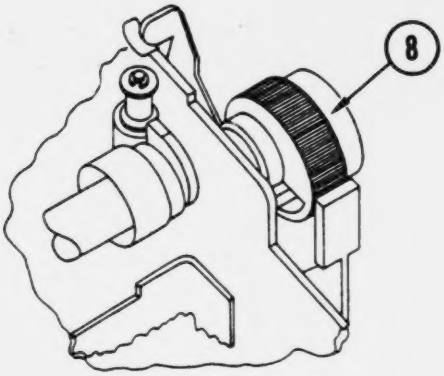
NOTE

By pressing and holding the FCT key and the ON LINE key, PPI will indicate either on line ONL or LOC for off line. Repeat sequence until PPI indicates LOC for off line.


LOC
FCT
CLR ALM
INT
ALT FONT
STAT
ON LINE
TEST
CPS
I
O
S
U
FULL DPLX
LF
LPI
FF
TOF SET
VT
VT SET
BOF SET
SP
CPI
CR
LM SET
VIEW
RM SET
CLR MRGN

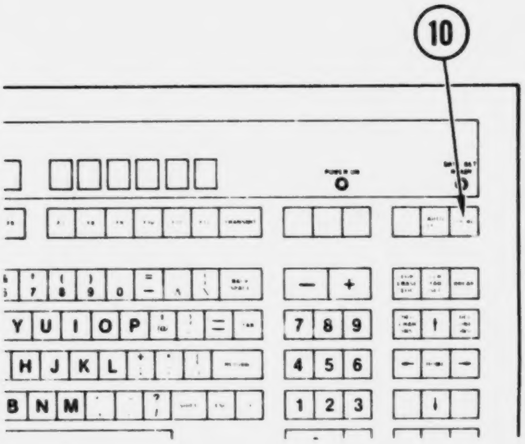
2. While in off line mode, check paper supply and restock (para 3-18) if necessary.
3. Check ribbon for wear, replace if necessary (para 3-19).
4. Check baud rate (para 3-20). Correct if necessary.
5. Check strap options (para 3-21). Change if necessary.
6. Check margins (para 3-22). Reset if necessary.
7. Check vertical forms and tabs settings (para 3-22). Change if necessary.

2-52. BRING CONSOLE PRINTER ON LINE/OFF LINE (CONT)

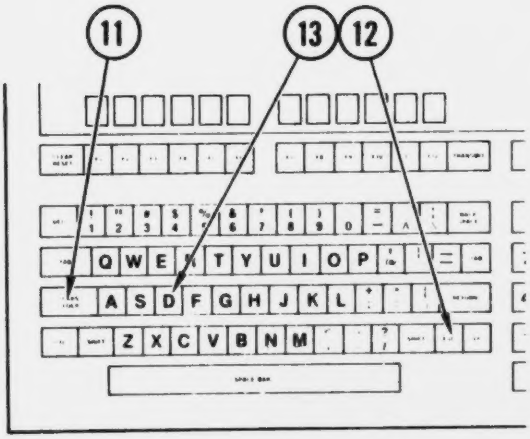


8. Press test button and hold. Check printout and ensure print head is making a clean copy. Adjust print head by setting the forms adjustment knob forward or to the rear.

9. Press FCT button and ON LINE key. PPI will indicate ONL.



10. At console terminal, press LOCAL and make sure LOCAL appears in status line on display screen. If not, press LOCAL on keyboard.



11. Make sure CAPS LOCK is up.

12. Press and hold ESC.

13. Press D.

NOTE

When you complete step 13 you should hear an audible click from console printer indicating the device is ON LINE.

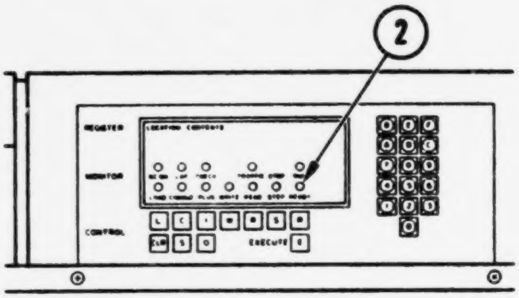
14. Release ESC and D.

15. Press LOCAL key again. Console printer is now ON LINE.

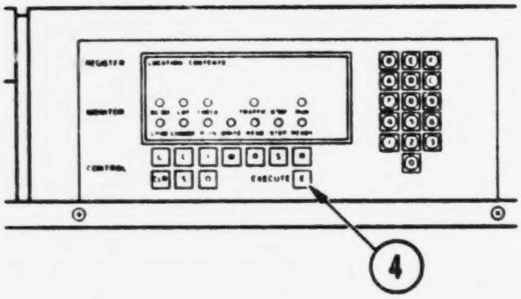
2-52. BRING CONSOLE PRINTER ON LINE/OFF LINE (CONT)

PPI DISPLAY READOUT	CONDITION INDICATED/ACTION REQUIRED
Err	Printer failure. Print fault caused by the print head's failure to move or a failure in the power supply, etc. Once the fault is corrected, the display may be cleared by pressing the CLR ALM key.
P-O	Paper out, Check paper.
Int	Received interrupt (spacing signal at least 110 msec. long). Causes the keyboard to lock and halts all data transmission. Unlock the keyboard by pressing the FCT key.
FUL	Indicates that the buffer is full, when the printer is strapped to send a BREAK. Wait for printer to empty buffer.
OFL	Buffer overflow. Occurs when characters are received after the receive buffer is full. Further received characters are lost. Host system must retransmit data.
FSU	Forms set up. Indicates vertical format mode is on.
OSU	Option set up. Indicates strapping option mode is on.
ASU	Answerback set up. Indicates answerback programming mode is on.
HAF FUL	Indicates half or full duplex operating conditions.
LOC OnL	Indicates either local or on line operating condition.
ALF OFF	Indicates a selected automatic line feed feature is a disabled automatic line feed feature.
Std ALt	Indicates current selected font style either standard or alternate. This feature available with APL or other alternate character set.
1 through 888	Numerical display. Used to indicate: • Current print position (1-217) • Line transmission rate (char/sec) (15, 30, 60, 120, 240, 480, 960) • Vertical lines per inch density (2, 3, 4, 6, 8, 12) • Horizontal print density (10, 13, 16)

2-53. BOOTSTRAP THE SYSTEM

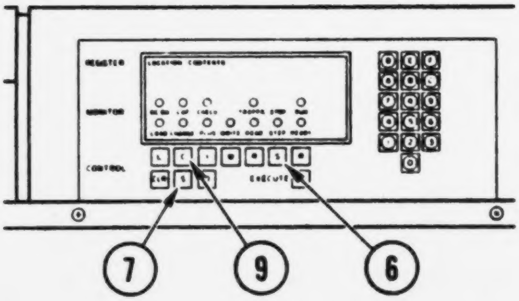

2
REGISTER
MONITOR
CONTROL
EXECUTE

1. Start up subsystem (para 2-47).
2. Check for READY light. When READY indicator lights, you are ready to boot the system from the CPU control panel.
3. Determine correct bootstrapping sequence and cycle up disk drive:
   - If booting from disk drive channel 0400, go to step 4
   - If booting from an alternate disk drive, go to step 6


REGISTER
MONITOR
CONTROL
EXECUTE
4

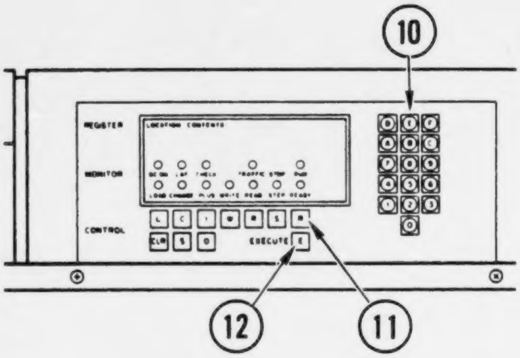
4. When READY indicator on disk drive is lit press E (execute).
5. Watch console terminal screen for banner message.
   - If banner message appears including correct time and date, the system is booted, go to step 14
   - If banner message appears telling you to enter the time, ENTER: year/month/day Δ military time without hyphen (C/R). For example:

     1984/12/06 Δ 1015 (C/R)
   - If banner message does not appear and register on control panel shows no activity, repeat steps 2 thru 4. If banner still does not appear, troubleshoot (table 3-1)


REGISTER
MONITOR
CONTROL
EXECUTE
7
9
6

6. Press S (stop).
7. Press S (select).
8. Enter D then 1.
9. Press C (change).

2-53. BOOTSTRAP THE SYSTEM (CONT)



10. Enter channel number of alternate disk drive. (0480, 0500, 0600, 0680, 0700).

11. Press R (ready).

12. Press E (execute).

13. Watch console terminal screen for banner message.

    - If banner message appears including correct time and date, the system is booted
    - If banner message appears telling you to enter the time and date, enter year/month/day Δ military time without hyphen (C/R). For example:

      1984/12/06Δ1015 (C/R)
    - If banner message does not appear and the register on the control panel shows no activity, repeat steps 6 thru 12. If banner still does not appear, troubleshoot (table 3-1)

    NOTE

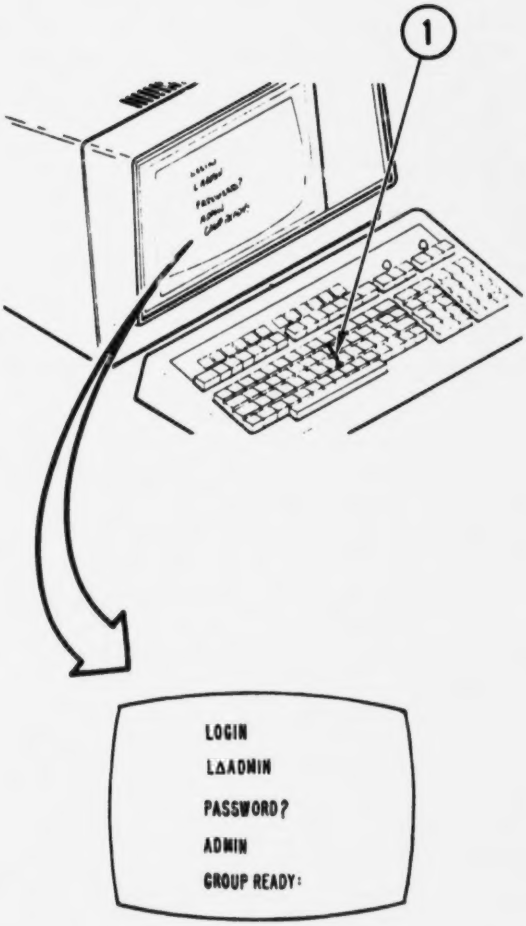
    The console terminal is now ready for input to the $ S task group (default task group). This allows you to:

    - Create batch task groups
    - Start and stop batching operations and on line task groups
    - Start up printer/punch daemon task group to allow execution of queued requests in order of priority
    - Execute error logging operations on the system for statistical support to maintenance

14. At control panel, turn key on panel security lock to left and lock.

15. Enter command for processing operation required (Appendix E).

2-54. LOG IN/LOG OFF FROM USER TERMINALS



NOTE

After you have made the physical connection to the CPU by bootstrapping the system, you may also have to make a logical connection which will identify you as a user known to the system. This is called login.

Log in

1. Determine from your supervisor's instructions whether you are operating from a login terminal or a non-login terminal. If you are operating from a login terminal follow steps 2 thru 5. If operating from a non-login terminal go to step 6.

2. After the system is booted, terminal will display LOGIN on the upper left side of your screen. Enter your login ID as given to you by your supervisor or by SOPs. In our example we use L∆ADMIN. Enter

   L∆ADMIN (C/R)

3. Once you have entered your six to eight character login line, system will respond with:

   PASSWORD?

   NOTE

   The password allows you to access the system. For security purposes, the system does not display your password. The system allows you four tries to enter the password correctly. If your fourth try fails, you must begin again by entering your login line.

4. You must now correctly enter the password. In this example we have used the password:

   ADMIN

2-54. LOG IN/LOG OFF FROM USER TERMINALS (CONT)

5. Wait for response from computer. If you are a command mode user (console operator) you will get a system ready message:

```
GROUP READY!
```

6. You are logged in. After the message of the day (if there is one) and the ready message are displayed, you can begin work.

Log Off

1. Enter [illegible] command, or the site-specific command:

```
Δ BYE   (C/R)
```

2. Check display screen, it should display LOGIN.

2-55. IDENTIFY DAS3 (D/C) UNITS

NOTE

To communicate with other DAS3 (D/C) units, you must know their node numbers and phone numbers.

1. Verify your own phone number and node number. At console terminal enter:

   ΔCΔ:$H: (C/R)

2. Enter:

   RDN:$H: (C/R)

   System responds with

   ($H)RDY:

3. Enter:

   CWDΔ> CONFDIR (C/R)

   System Responds

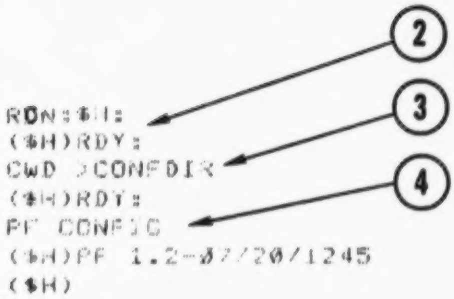
   ($H)RDY:

4. Enter:

   PFΔCONFIG (C/R)

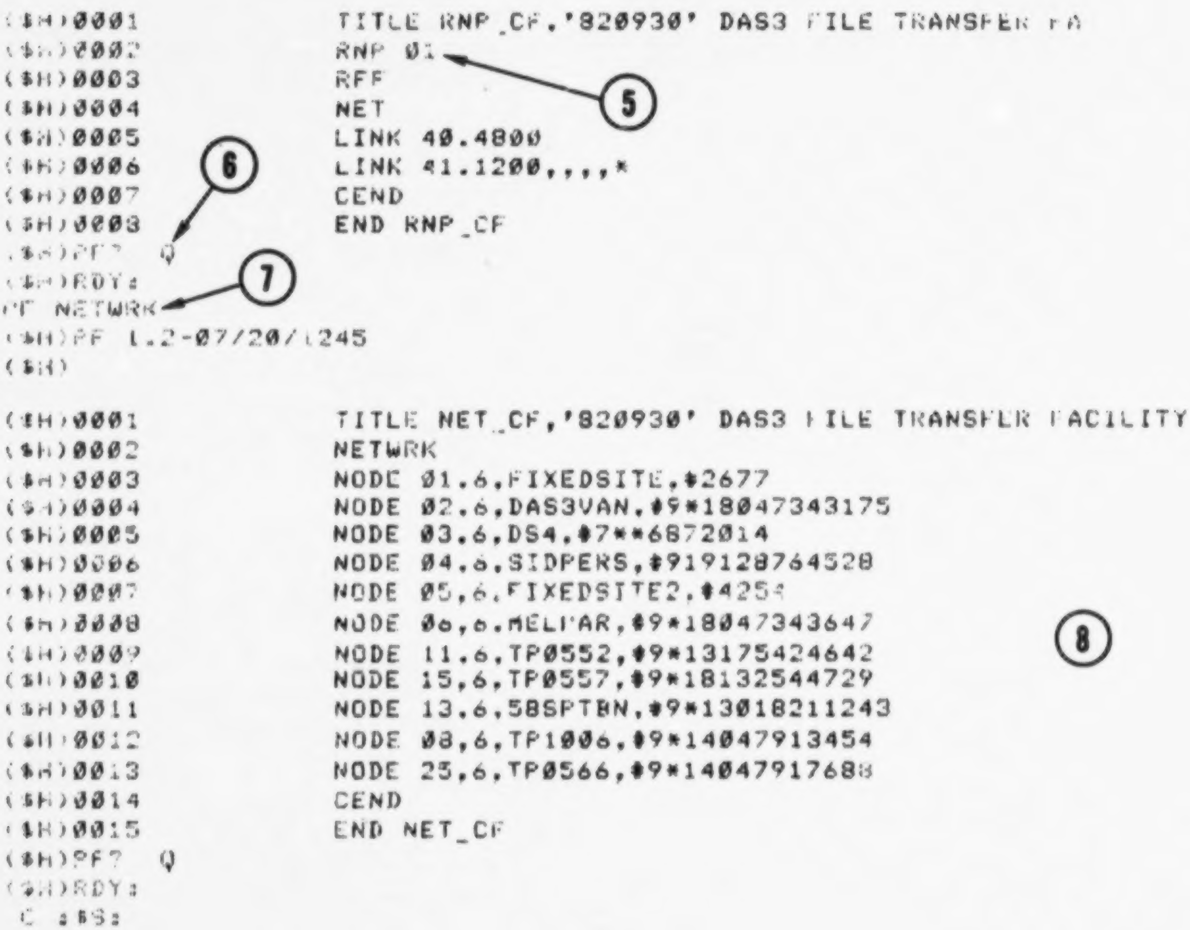
   System responds with your node ID.

   ($H)PFΔ1.2-07/20/1245
   ($H)



```
RDN:$H:
($H)RDY:
CWD >CONFDIR
($H)RDY:
PF CONFIG
($H)PF 1.2-07/20/1245
($H)
```

2-55. IDENTIFY DAS3 (D/C) UNITS (CONT)



```
($H)0001           TITLE RNP_CF,'820930' DAS3 FILE TRANSFER FA
($H)0002           RNP 01
($H)0003           RFF
($H)0004           NET
($H)0005           LINK 40.4800
($H)0006           LINK 41.1200,,,,*
($H)0007           CEND
($H)0008           END RNP_CF
($H)PF?  Q
($H)RDY:
PF NETWRK
($H)PF 1.2-07/20/1245
($H)

($H)0001           TITLE NET_CF,'820930' DAS3 FILE TRANSFER FACILITY
($H)0002           NETWRK
($H)0003           NODE 01.6,FIXEDSITE,#2677
($H)0004           NODE 02.6,DAS3VAN,#9*18047343175
($H)0005           NODE 03.6,DS4,#7**6872014
($H)0006           NODE 04.6,SIDPERS,#919128764328
($H)0007           NODE 05,6,FIXEDSITE2,#4254
($H)0008           NODE 06,6.MELPAR,#9*18047343647
($H)0009           NODE 11.6,TP0552,#9*13175424642
($H)0010           NODE 15,6,TP0557,#9*18132544729
($H)0011           NODE 13.6,58SPTBN,#9*13018211243
($H)0012           NODE 08,6,TP1006,#9*14047913454
($H)0013           NODE 25,6,TP0566,#9*14047917688
($H)0014           CEND
($H)0015           END NET_CF
($H)PF?  Q
($H)RDY:
 C $S:
```

5. Identify your van ID. Make a note of it. It appears next to the RNP identifier.

6. Enter: Q (C/R)

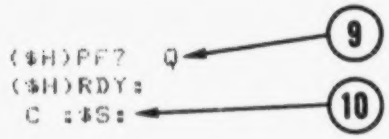
   - System responds ($H) RDY:

7. Enter: PF∆NETWRK (C/R)

   - System responds with table

8. Note the node numbers and phone numbers you will need.

2-55. IDENTIFY DAS3 (D/C) UNITS (CONT)



```
($H)PF?  Q
($H)RDY:
 C  :$S:
```

9. Enter:

   Q (C/R)

   - System responds ($H) RDY:

10. Enter:

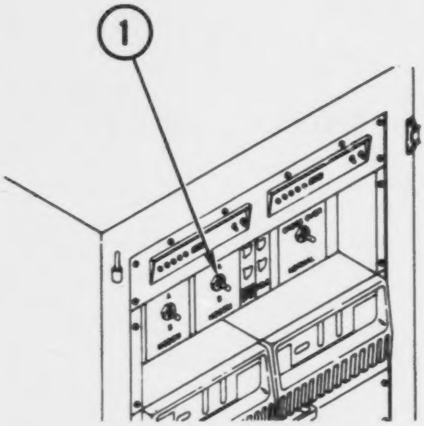
    Δ CΔ: $S: (C/R)

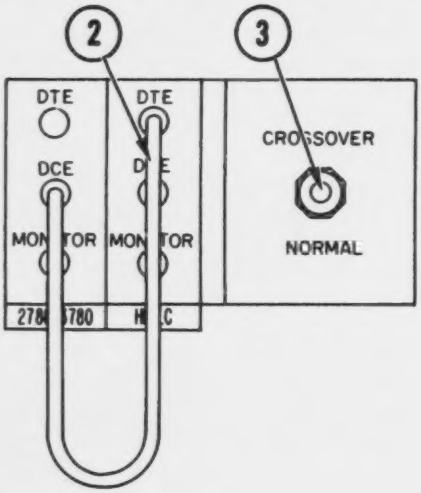
    - System does not respond

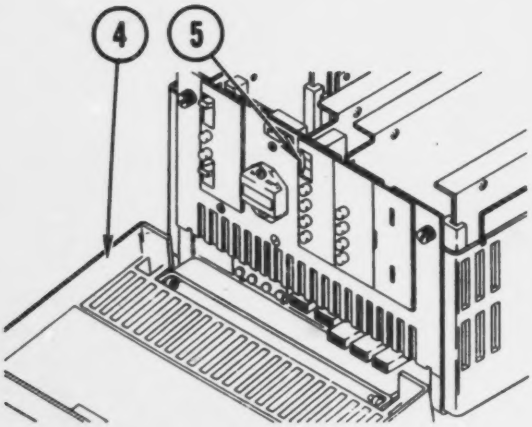
NOTE

You now have the information you need to communicate with other DAS3 (D/C) units either direct connect or by autocall.

2-56. ENABLE/DISABLE DIRECT LINE COMMUNICATIONS TO ANOTHER DAS3 (D/C)







PART A - A CABINET CONNECTION

NOTE

Ensure four wire land line is installed on binding posts 3-4 at signal entrance to cabinet A. The other operator's land line must be configured opposite to yours. Your transmit is his receive line, your receive line is his transmit. Set remote 2 switch to binding post position. Identify the node number of the van you are accessing (para 2-55).

Enable

1. Set device switch on cabinet A to MODEM position or to CONVERTER as appropriate. (Right MODEM and right CONVERTER are for routine bulk data transfer.)
2. Plug one end of patch cord into DTE connector on grey HDLC patch module plug other end into DCE connector on black 2780/3780 patch module.
3. Set CROSSOVER switch in NORMAL position.

NOTE

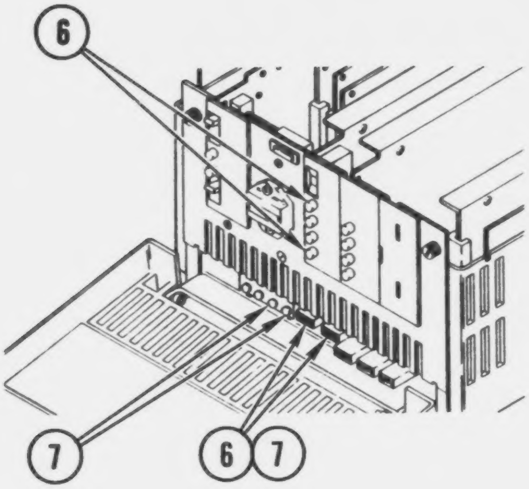
If transferring data using the converter go to step 8.

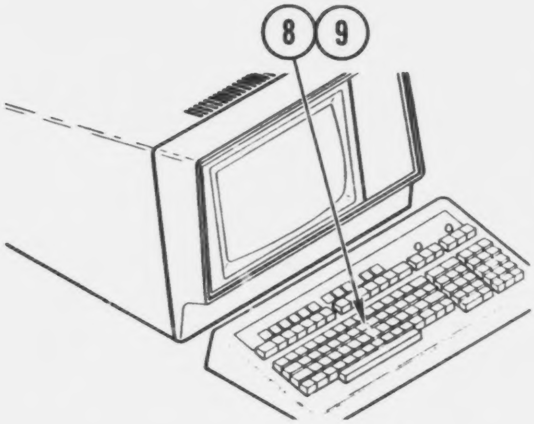
4. Open front cover of right V.29 modem.
5. Set data rate thumbwheel to number 3.

NOTE

BPS rates are a variable, and both DAS3 (D/C) units must have the same bps rates to transfer data.

2-56. ENABLE/DISABLE DIRECT LINE COMMUNICATIONS TO ANOTHER DAS3 (D/C) (CONT)





6. Press MDM CHK and DATA clamp switches. GOOD DATA and TEST indicators should light.
   - If either or both do not light, troubleshoot (table 3-1)
7. Release MDM CHK then DATA clamp switches. DCD and DSR indicators should light.
   - If either or both do not light troubleshoot (table 3-1)
8. Enable the data communication link to DAS3 (D/C) being accessed by entering this command at console terminal:

```
OLCΔ-ENΔ-LKΔ0 (C/R)
```

NOTE

Operator at distant DAS3 (D/C) must also enable the link. For more information on the Operator Link Command (OLC) see appendix E.

A new link must be established every time the system is booted. System will respond with a message on the console terminal: NETWORK CONFIGURATION IS COMPLETED. This occurs only after system is first booted.

9. Obtain status of your link by entering this command:

```
OLCΔ-BFΔ-LKΔ0 (C/R)
```

This gives a brief status of the link or enter this command:

```
OLCΔ-STATΔ-LKΔ0 (C/R)
```

which gives a full statement. If satisfied with status, send message (SM): Enter:

```
ΔCΔ:$H: (C/R)
```

2-56. ENABLE/DISABLE DIRECT LINE COMMUNICATIONS TO ANOTHER DAS3 (D/C) (CONT).

Then enter

```
RDN (C/R)
```

System responds with

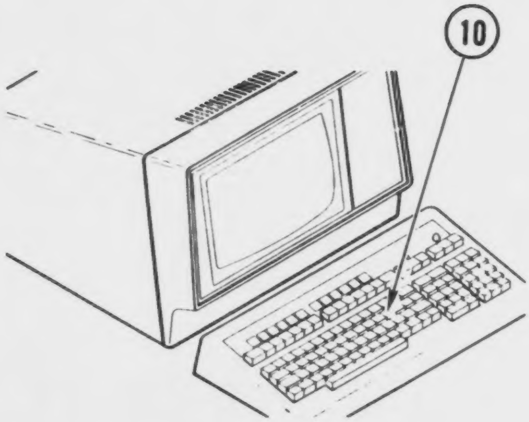
```
($H) RDY:
```

To send message enter:

```
SMΔ01Δ message (C/R)
```

NOTE

The 01 identifies other DAS3 (D/C). Make sure you identify the other DAS3 (D/C) by proper node number (para 2-55).



10. Transfer data as appropriate. See DAS3 (D/C) to DAS3 (D/C) data exchange (appendix E).

NOTE

In order to transfer data to a (second) DAS3 (D/C) or to an IBM computer, you must disable the link with the first unit.

Disable

1. Enter this command at your terminal:

```
OLCΔ-DIΔ-LKΔ0  (C/R)
```

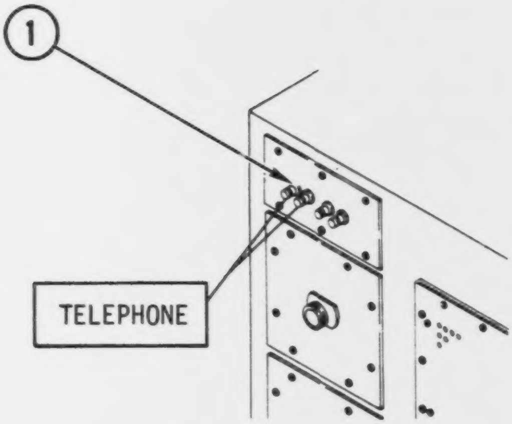
2. Check your screen, system should respond with:

```
RDY
```

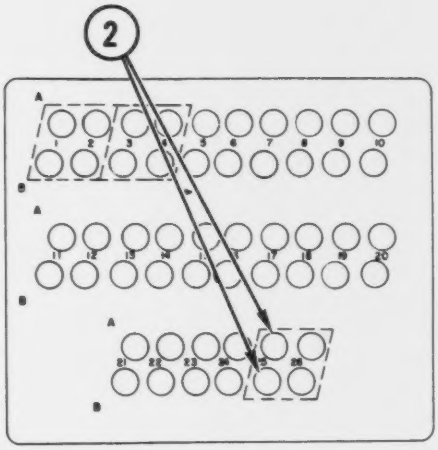
2-56. ENABLE/DISABLE DIRECT LINE COMMUNICATIONS TO ANOTHER DAS3 (D/C) (CONT)

PART B - B CABINET CONNECTION

A DAS3 (D/C) can be four-wire direct connected to another system using an RM-201B modem. Your van loses its auto call/auto answer capability. The modem in slot 13 of the quasi analog modem assembly must be disconnected, removed and replaced with the RM-201B modem card. It is not necessary to remove any other modem boards from the quasi-analog modem assembly.

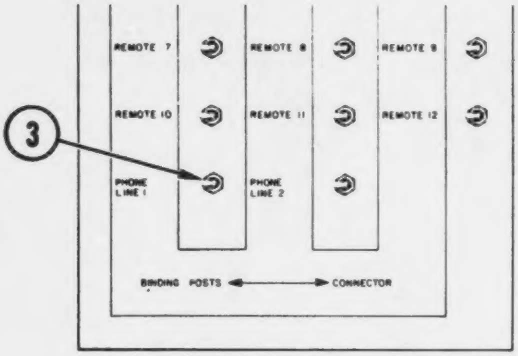


1. To maintain telephone communications, connect your telephone to Pair 25 (binding posts 1 and 2) on the A cabinet.



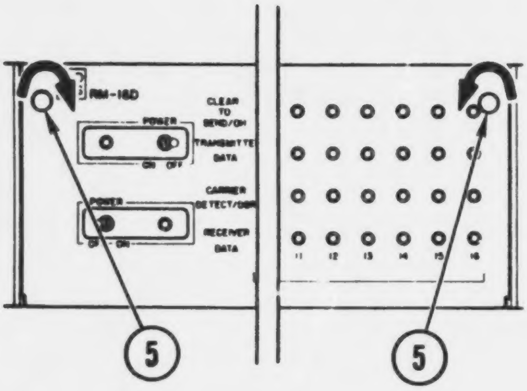
2. Connect telephone lines to pair 25 at the A cabinet signal entrance panel.

2-56. ENABLE/DISABLE DIRECT LINE COMMUNICATIONS TO ANOTHER DAS3 (D/C) (CONT)

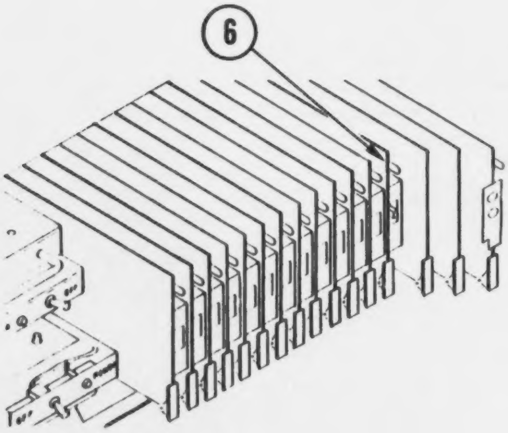

REMOTE 7
REMOTE 8
REMOTE 9
REMOTE 10
REMOTE 11
REMOTE 12
3
PHONE LINE 1
PHONE LINE 2
BINDING POSTS
CONNECTOR

3. Set BINDING POST/CONNECTOR switch to either BINDING POST or CONNECTOR as appropriate.

4. Set VOICE/DATA switch on A cabinet to VOICE.

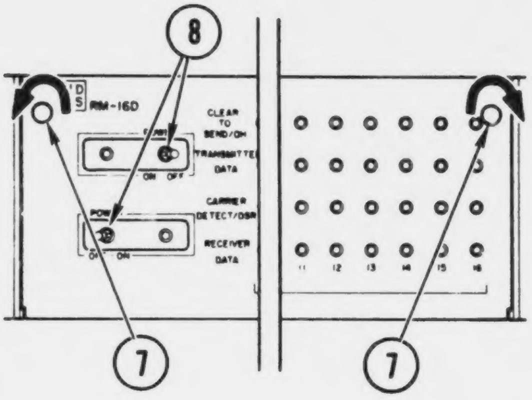

RM-16D
POWER
ON
OFF
POWER
OFF
ON
CLEAR TO SEND/ON
TRANSMITTED DATA
CARRIER DETECT/DSR
RECEIVER DATA
11
12
13
14
15
16
5
5

5. At B cabinet, quasi analog modem assembly, turn knobs as shown. Lower panel.

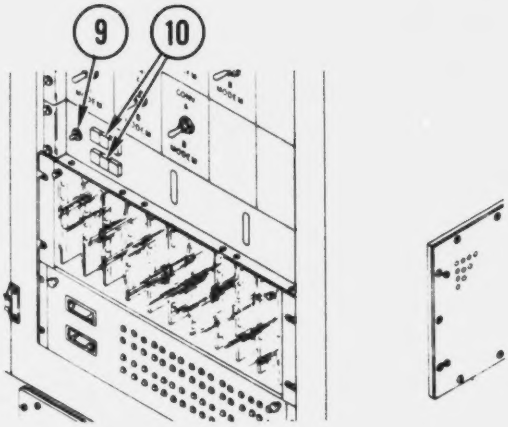


6. Ensure RM-201B modem card is in slot 13.

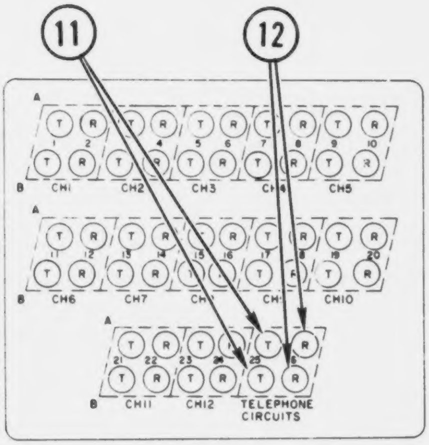
2-56. ENABLE/DISABLE DIRECT LINE COMMUNICATIONS TO ANOTHER DAS3 (D/C) (CONT)


8
RM-16D
CLEAR TO SEND/OH
TRANSMITTED DATA
CARRIER DETECT/DSR
RECEIVER DATA
POWER
ON OFF
11
12
13
14
15
16
7
7

7. Raise panel. Turn knobs as shown to fasten panel.
8. Power ON modem assembly if it was powered off.

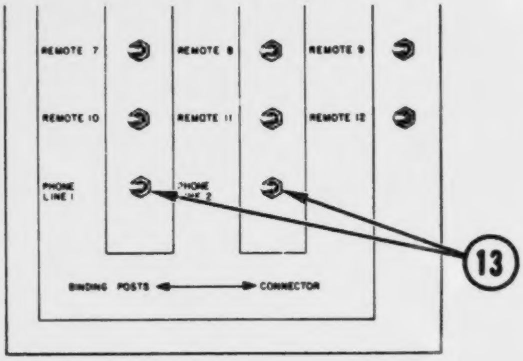


9. Set two wire/four wire switch to four-wire position.
10. Press VOICE/DATA buttons on each row of buttons to data position.


11
12
A
B
CH1
CH2
CH3
CH4
CH5
CH6
CH7
CH10
CH11
CH12
TELEPHONE CIRCUITS

11. At B cabinet signal entrance panel connect your transmit lines to pair 25.
12. Connect your receive lines to pair 26.

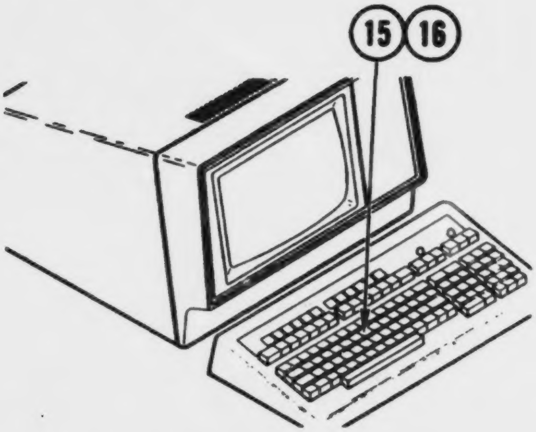
2-56. ENABLE/DISABLE DIRECT LINE COMMUNICATIONS TO ANOTHER DAS3 (D/C) (CONT)


REMOTE 7
REMOTE 8
REMOTE 9
REMOTE 10
REMOTE 11
REMOTE 12
PHONE LINE 1
PHONE LINE 2
13
BINDING POSTS
CONNECTOR

13. At B cabinet BINDING POST/CONNECTOR switch panel, set both telephone line switches to BINDING POST.

14. Check with system administrator to ensure CLM user file and RNP CONFIG file have been changed.

    - If system was not reconfigured, have system administrator do it now.



15. When reconfiguration is complete, reboot the system (para 2-53).

16. Enable the data communication link to DAS3 (D/C) being accessed by entering this command at console terminal:

```
OLC Δ-EN Δ-LK Δ 1 (C/R)
```

System will respond with NODE INITIALIZED CONNECT MESSAGE as soon as link is enabled. It could take up to two minutes.

NOTE

Operator at distant DAS3 (D/C) must also enable the link. For more information on the Operator Link Command (OLC) see appendix E.

A new link must be established every time the system is booted. System will respond with a message on the console terminal: NETWORK CONFIGURATION IS COMPLETED. This occurs only after system is first booted.

2-56. ENABLE/DISABLE DIRECT LINE COMMUNICATIONS TO ANOTHER DAS3 (D/C) (CONT)

17. Obtain status of your link by enter this command:

```
OLCΔ-BFΔ-LKΔ1 (C/R)
```

This gives a brief status of the link or enter this command:

```
OLCΔ-STATΔ-LKΔ1  (C/R)
```

Which gives a full statement. If satisfied with status, send message (SM): Enter:

```
ΔCΔ:  $H:  (C/R)
```

Then enter

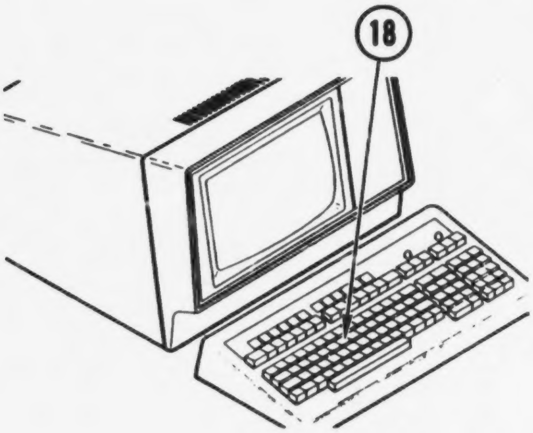
```
RDN (C/R)
```

System responds with

```
($H) RDY:
```

To send message enter:

```
SMΔnodeΔmessage (C/R)
```



18. Transfer data as appropriate.

Disable

1. Enter this command at console terminal:

```
ΔCΔ:$S:  (C/R)
```

Enter:

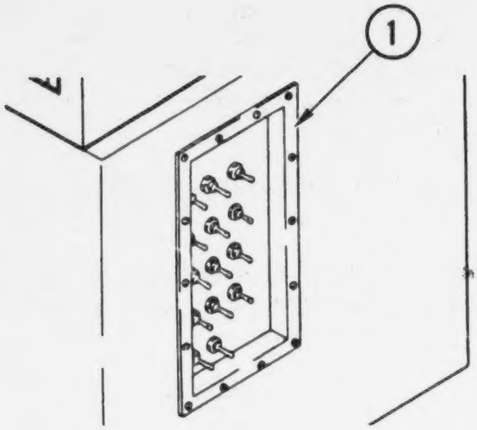
```
OLCΔ-D1Δ-LKΔ1  (C/R)
```

2. Check screen, system will respond with

```
LINK 1 DISABLED
```

3. Resume operations.

2-57. ENABLE/DISABLE COMMUNICATION LINK TO REMOTE TERMINALS

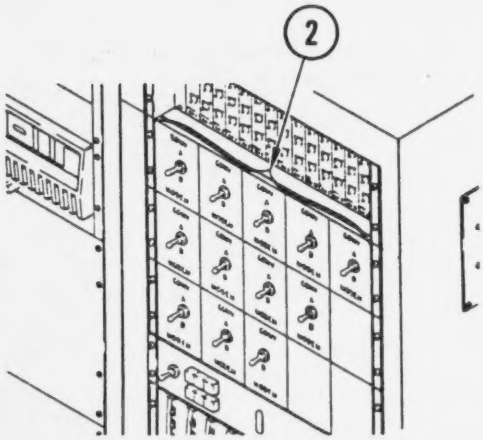


NOTE

Ensure signal wires are installed on cabinet B for channels to be accessed (fig. 1-33). Determine whether remote channels are direct wire (binding posts) or connector wired (26 pair telephone cable line).

Enable

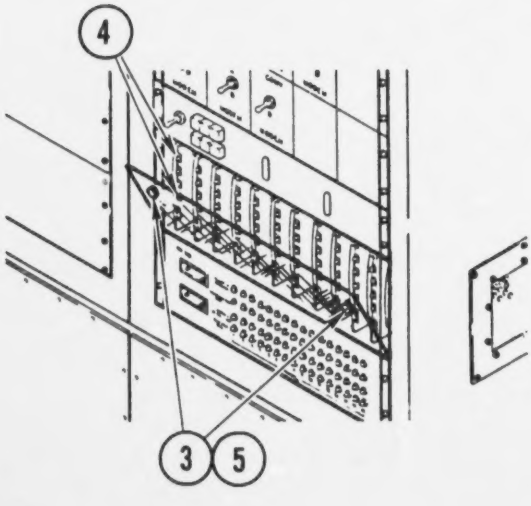
1. Set switches at cabinet B to either BINDING POST or CONNECTOR for each remote terminal being accessed.



2. Set device switches to either CONVERTER or MODEM depending on data transmission mode required.

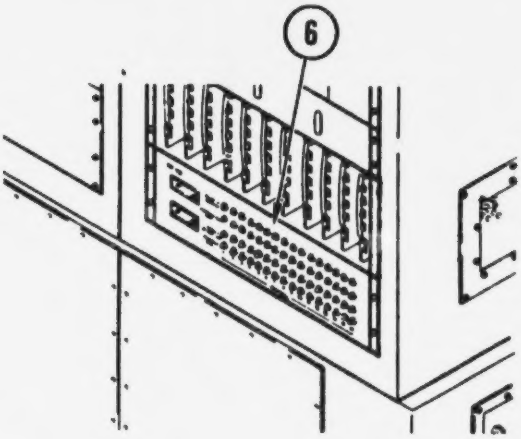
NOTE

For terminals being accessed using CONVERTER, follow steps 3, 4 and 5. For channels being accessed using MODEM go to step 6.



3. Open front cover of converter and set switches on channels being accessed as follows:
   - Set DISTANCE to SHORT
   - Set LPBK to NORMAL
4. Check POWER and RLSD indicators.
   - If both are lit go to step 5
   - If only POWER is lit, contact remote operator before troubleshooting
   - If both are not lit, troubleshoot (Table 3-1)
5. Close cover and tighten hand screws, then go to step 7.

2-57. ENABLE/DISABLE COMMUNICATIONS TO REMOTE TERMINALS (CONT)

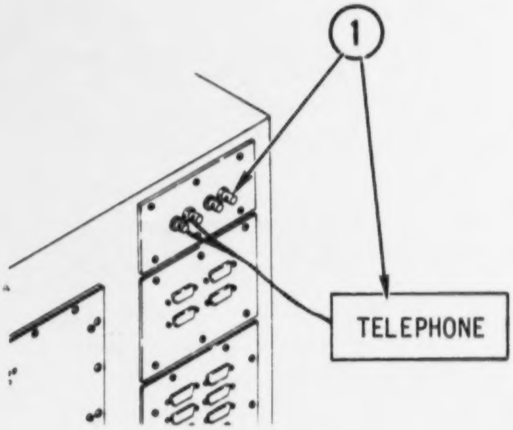


6. Ensure that CLEAR TO SEND indicators are lit on channels accessed at quasi-analog modem panel. If any are not lit, troubleshoot (table 3-1).
7. Send file or test message as appropriate.
    - If remote operator does not acknowledge, call and request ready status

Disable

1. Telephone and inform remote operator you are disabling the terminal link.
2. Remove signal wires at signal entrance panel.

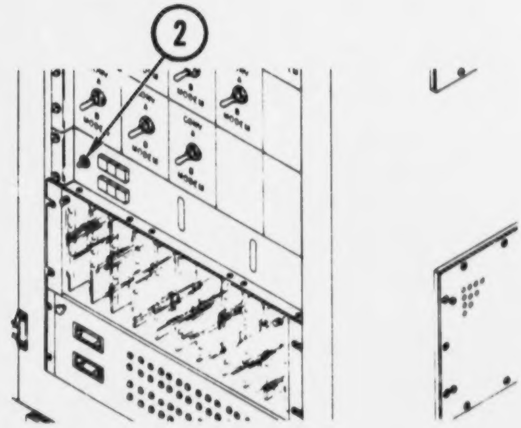
2-58. ENABLE/DISABLE DATA EXCHANGE LINK WITH AN IBM COMPUTER


1
TELEPHONE

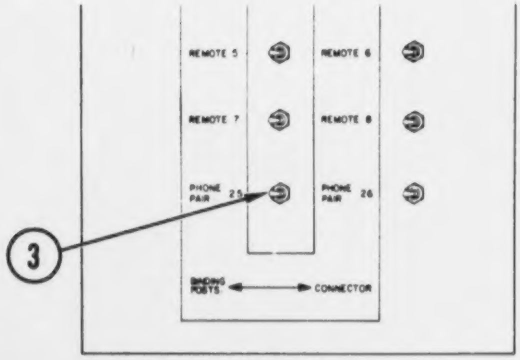
NOTE

A data transmission path between the DAS3 (D/C) and an IBM computer can be established over the 2780/3780 circuits in the A cabinet. The circuit must be patched to line 1 in the B cabinet. The patch opens the data transmission path through Slot 13 of the quasi-analog modem.

1. Connect phone lines to outside binding posts pair 25 on B cabinet and connect telephone to inside binding posts pair 25.

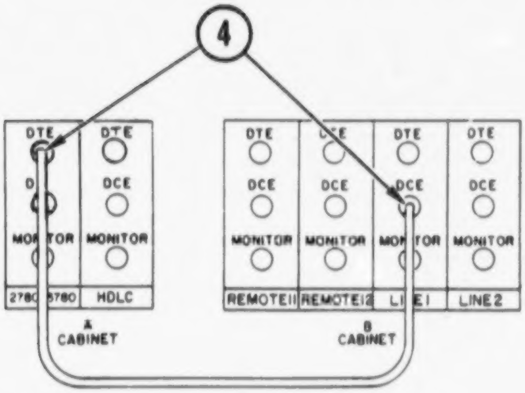


2. Set TWO WIRE/FOUR WIRE switch on B cabinet to two/wire position.


REMOTE 5
REMOTE 6
REMOTE 7
REMOTE 8
PHONE PAIR 25
PHONE PAIR 26
3
BINDING POSTS
CONNECTOR

3. Set PAIR 25 toggle switch to binding post position.

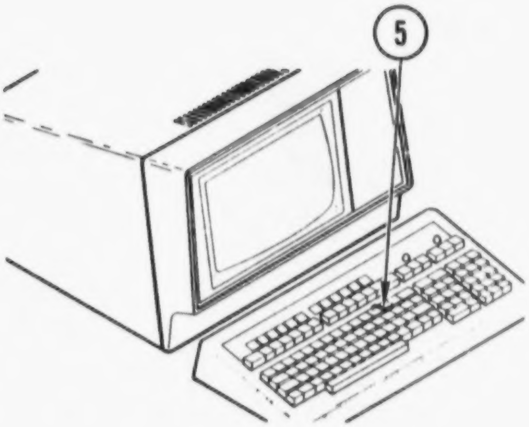
2-58. ENABLE/DISABLE DATA EXCHANGE LINK WITH AN IBM COMPUTER (CONT)


4
DTE
DCE
MONITOR
2780 3780
HDLC
A
CABINET
REMOTE11
REMOTE12
LINE1
LINE2
B
CABINET

4. Insert patch cord into the DTE of the 2780/3780 patch in the A cabinet into line 1 DCE in the B cabinet.

NOTE

Pathnames in the TRANB command are site specific. Both CPUs must be configured with the right directives.



5. At console terminal enter:

```
ΔCΔ:$H: (C/R)
```

Then enter `RDN (C/R)`

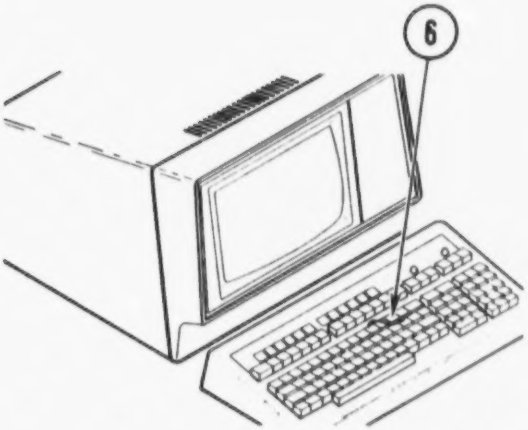
System responds `($H) RDY:`

NOTE

You must change working directory with site specific command such as:

```
CWDΔ> HIST (C/R)
```

System responds `($H) RDY:`



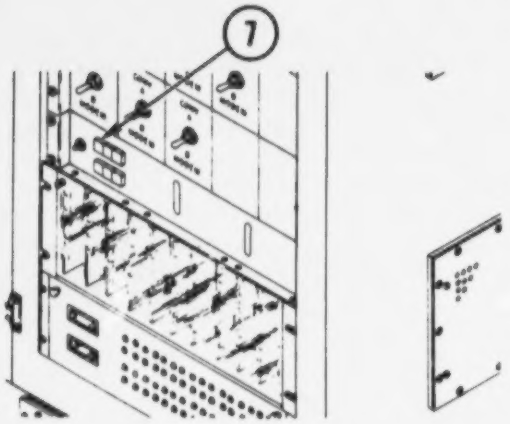
6. Enter the complete TRANB command. This example of a site specific command transfers a file to the IBM computer.

```
TRANBΔSDΔ-L378  PATHNAME 1Δ

-NΔ!B3780Δ-IΔPATHNAME 2  (C/R)
```

(See Appendix E TM-11-7010-205-10-2 for more information on TRANB).

2-58. ENABLE/DISABLE DATA EXCHANGE LINK WITH AN IBM COMPUTER (CONT)

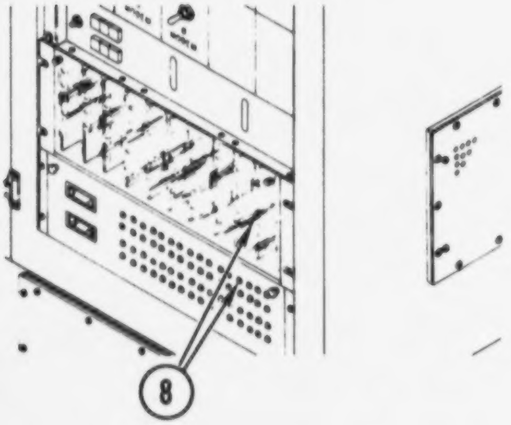


7. Press VOICE button on B Cabinet (upper row pair 25).

8. Dial number of IBM computer. When you hear a high pitch modem tone, depress and hold DATA SEND button. Release when CTS indicator lights above slot 13.

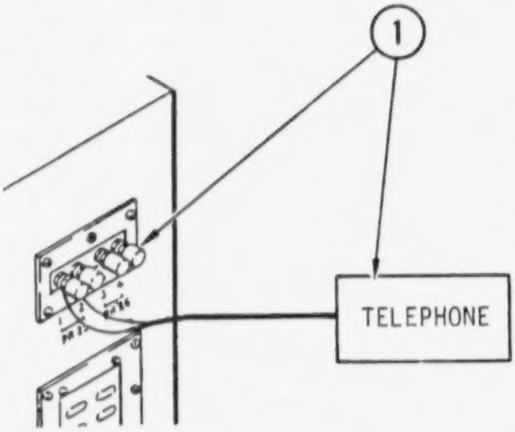
NOTE

Data transfer will begin as soon as CPU reacts to modem tone. Transfer may take some time depending on how much data the IBM is handling at the time you made the transfer.



9. Resume operation, when data transfer is complete. System will respond with ($H) RDY:

2-59. ENABLE/DISABLE AUTO CALL TO ANOTHER DAS3 (D/C)

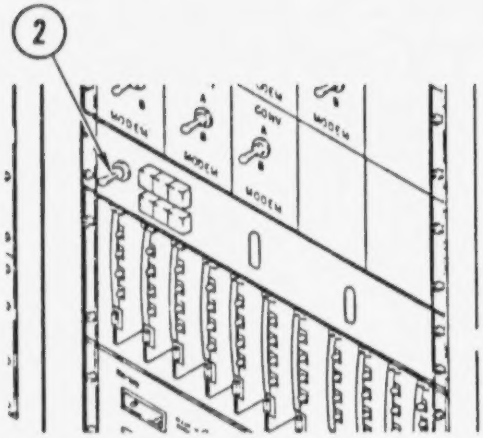


NOTE

Confirm that the other DAS3 (D/C) to be accessed has the same modem configuration, i.e, that slots 13 and 14 are compatible in the quasi-analog modem assembly, that the bps rates are the same and the system is powered ON and ready to go. Determine node numbers and phone numbers (para 2-55).

<u>Enable</u>

1. Connect telephone to binding posts on upper right side of B cabinet. Connect phone to pair 25 for two-wire hookup.



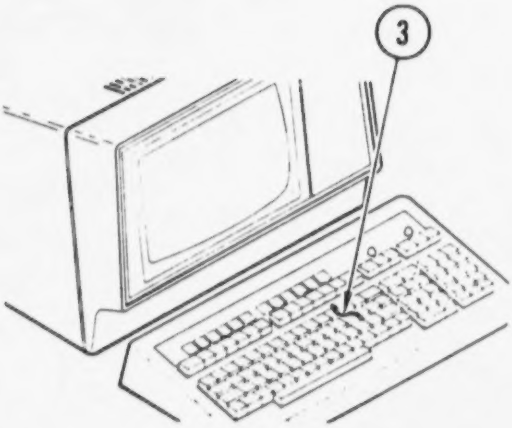
2. Set two-wire/four-wire switch on B cabinet to two wire.

NOTE

If the direct channel 3C00 had been previously used to access any other DAS3 (D/C) the link must be disabled by entering this command or the site specific command at the console terminal.Under ($S) Enter:

```
    ΔCΔ:$:  (C/R)

OLCΔ-DIΔ-LKΔ0  (C/R)
```



3. Enable the autocall link to DAS3 (D/C) being accessed by entering this command at the console:

```
OLCΔ-ENΔ-LKΔ1  (C/R)
```

2-59. ENABLE/DISABLE AUTO CALL TO ANOTHER DAS3 (D/C) (CONT)

NOTE

A new link must be established every time the system is booted. See Operator Link Command (OLC) Appendix E. Both operators must enable the link on their console terminals. System will respond with a message on the console terminal: NETWORK CONFIGURATION IS COMPLETED.

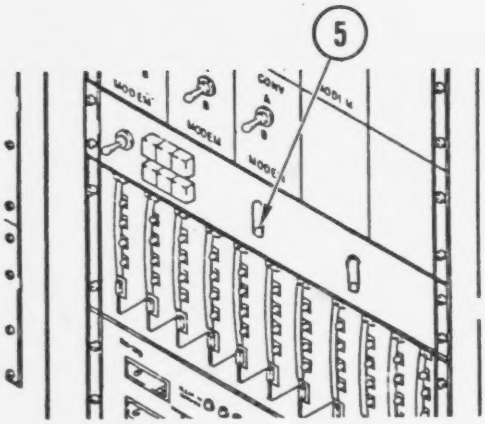
4. Obtain status of link by entering this command at any terminal.

   OLC Δ-BF Δ -LK Δ 1 (C/R)

   This gives a brief status of the system or use the command:

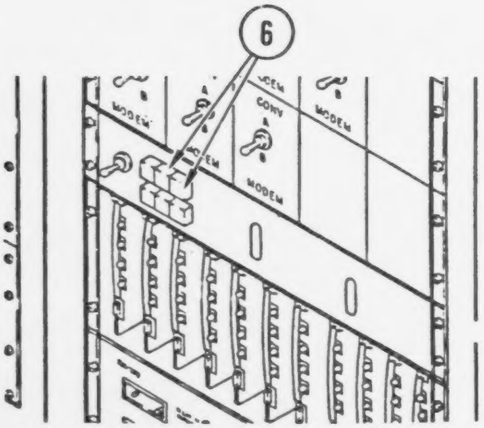
   OLC Δ -STAT Δ -LK Δ 1 (C/R)

   which gives a full statement.



5. Monitor DAA Observation Port. If DAA indicator for telephone pair 25 is lit, there is trouble on the line. Troubleshoot (table 3-1).

6. Ensure both DATA SEND and DATA RECEIVE buttons are lit and VOICE button is not.



7. Transfer data as appropriate (appendix E) or send test message:

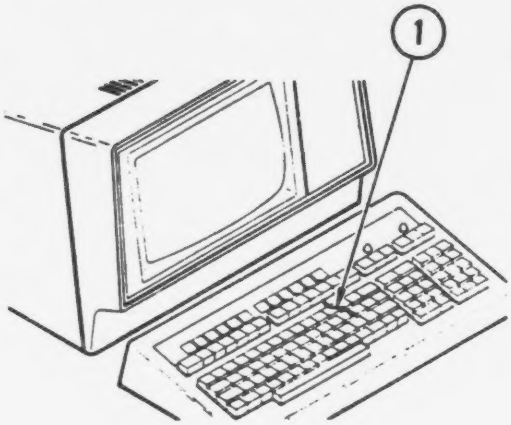
   Enter Δ C Δ :$H: (C/R)

   Enter RDN (C/R)

   Send message:

   SM node# Δ ARE YOU RECEIVING? (C/R)

2-59. ENABLE/DISABLE AUTO CALL TO ANOTHER DAS3 (D/C) (CONT)



Disable

1. Disable link upon completion of data transfer by entering disabling command under $S.

   Enter:

   ```
   ΔCΔ : $S:  (C/R)
   ```

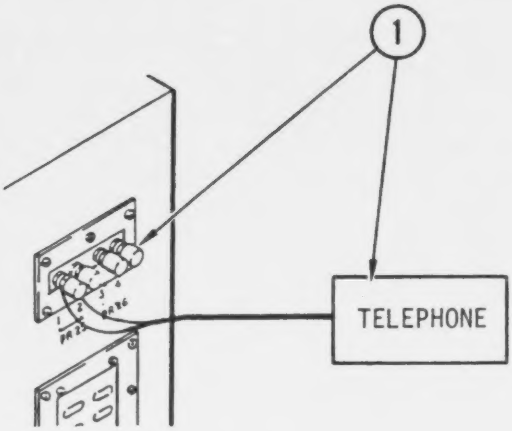
   Enter:

   ```
   OLCΔ -D1Δ -LKΔ 1 (C/R)
   ```

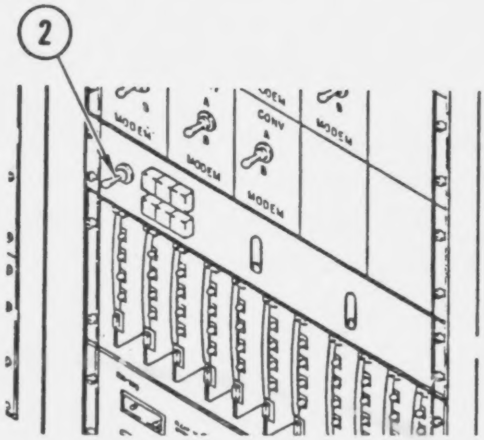
2. Check console screen. System will respond with link disable message.

2-60. ENABLE/DISABLE MANUAL DIAL/MANUAL ANSWER

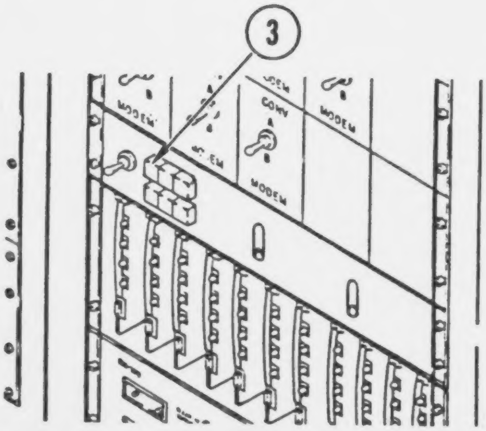
Enable


1
TELEPHONE
1
2
3
4
PR 25
PR 26

1. Connect phone to binding posts 1 and 2, pair 25, on upper right side of cabinet B. Ensure phone wires are connected to pair 25 on outside lines at signal entrance panel of B cabinet.

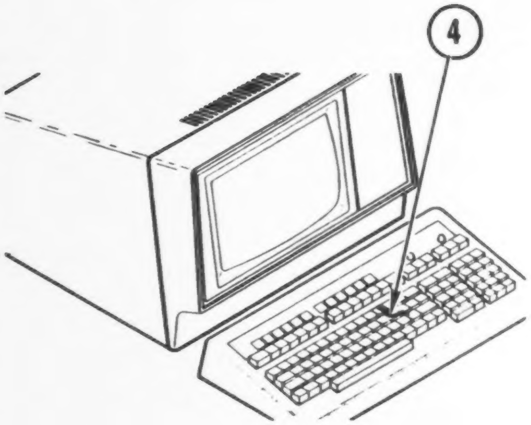

2
MODEM
CONV
MODEM

2. Set TWO WIRE/FOUR WIRE switch to two-wire position.


3
MODEM
CONV
MODEM

3. Press voice button in on top row of buttons.

2-60. ENABLE/DISABLE MANUAL DIAL/MANUAL ANSWER (CONT)



NOTE

If the direct connect channel 3C00 had been previously used to communicate with any other DAS3 (D/C) the link must be disabled at the initiating site. At console terminal enter the command (under $S): Δ C Δ:$S: (C/R)

Then enter:

OLC Δ-DI Δ-LK Δ1 (C/R)

4. Enable the link. Operators at both sites must establish a new link by entering the command (under $S) on their console terminals:

   OLC Δ-EN Δ-LK Δ1 (C/R)

   NOTE

   System will respond with a message that link has been established provided it is the first time the system was enabled after booting. A new link must be established every time the system is booted.

5. Obtain status of link by entering he command:

   OLC Δ-BF Δ-LK Δ1 (C/R)

   This gives a brief status of the link or enter this command:

   OLC Δ-STAT Δ-LK Δ1 (C/R)

   which gives a full statement.

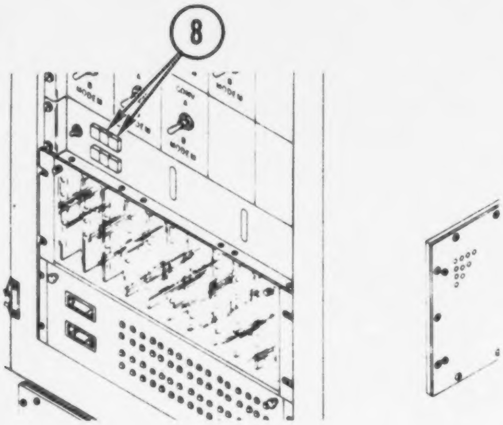
6. Dial phone number of distant DAS3 (D/C).

7. When distant DAS3 (D/C) operator answers, determine who will transmit/receive.

   - If he is to receive data, you press DATA SEND while he presses DATA RECEIVE

   - If you are to receive data, you press DATA RECEIVE, he presses DATA SEND

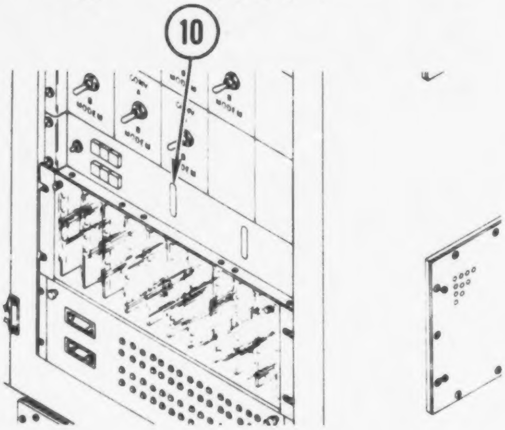
2-60. ENABLE/DISABLE MANUAL DIAL/MANUAL ANSWER (CONT)



8. Coordinate efforts press either DATA SEND or DATA RECEIVE button as appropriate. Hold button in until CTS lights on Slot 13 in quasi-analog modem assembly.

9. Transmit or receive data. (See data transfer procedures appendix E) or send test message under $H. Enter ΔCΔ:$H: (C/R) Enter RDN (C/R). System responds with ($H) RDY: Send message:

   SMΔnode #ΔARE YOU RECEIVING? (C/R)



10. Monitor DAA observation port. If DAA indicator is lit, there is trouble on the line. Troubleshoot (table 3-1).

Disable

1. Disable link when data transaction is completed. Under $H Enter:

   ΔCΔ:$S:Δ(C/R)

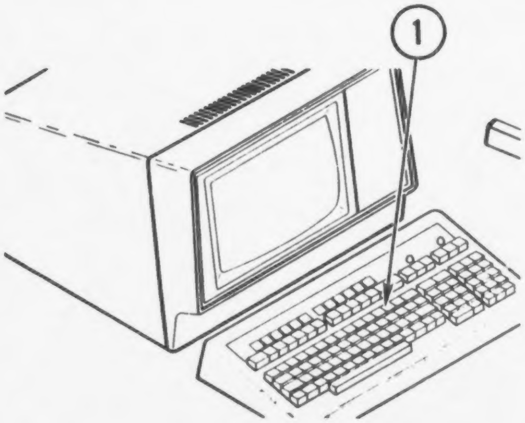
   Enter:

   OLCΔ-D1Δ-LKΔ1 (C/R)

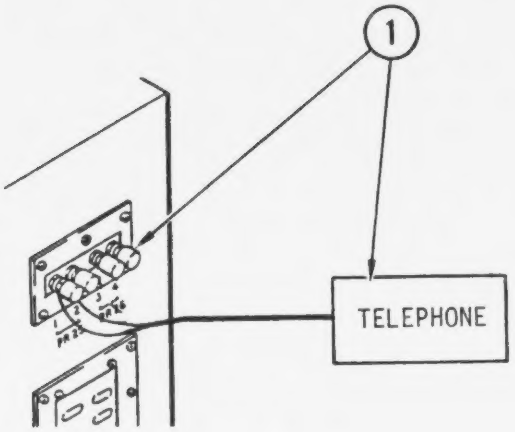
2. Check console screen. System should respond with:

   LINK DISABLED

3. Resume normal operation.



2-61. ENABLE/DISABLE MANUAL DIAL/AUTO ANSWER



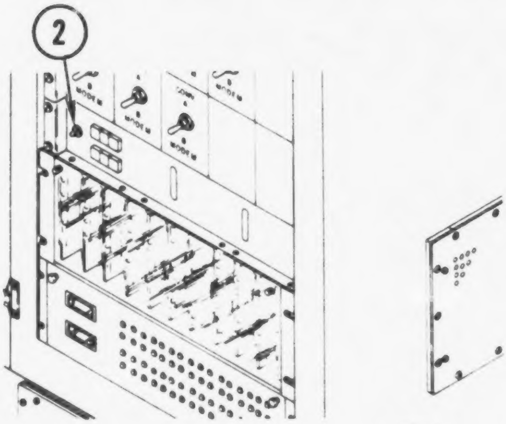
NOTE

Confirm that the other DAS3 (D/C) to be accessed has the same modem configuration, i.e, that channels 13 and 14 are compatible in the quasi-analog modem rack, that the BPS rates are the same and the system is powered ON and ready to go. Identify node numbers and phone numbers (para 2-55).

Enable

1. Connect telephone to inside binding posts on upper right side of B Cabinet. Connect phone to binding pair 25 for two-wire hookup. Ensure wires are connected to pair 25 on B cabinet at signal entrance panel.

2. Set TWO-WIRE/FOUR-WIRE switch to two wire setting.



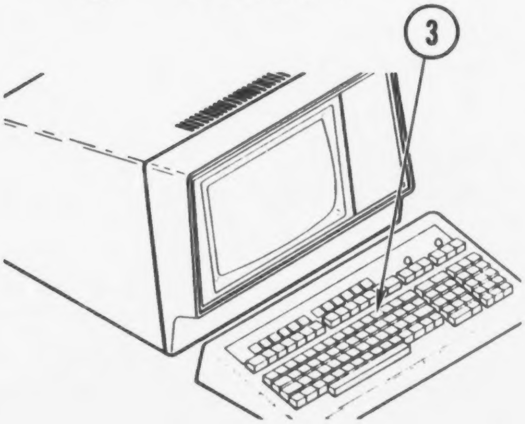
NOTE

If the ACU direct connect channel 3C00 had been previously used it must be disabled at the initiating site. At console terminal enter the command (under $S): ΔCΔ:$S: (C/R)

```
OLCΔ-DIΔ-LKΔ0 (C/R)
```

3. Enable the link. Operators at both sites must establish a new link by entering the command (under $S):

```
OLCΔ-ENΔ-LKΔ1 (C/R)
```



2-61. ENABLE/DISABLE MANUAL DIAL/AUTO ANSWER (CONT)

NOTE

System console terminal will respond with a message: NETWORK CONFIGURATION IS COMPLETED, the first time link is made.

```
OLC -EN -LK 1
($S)Remote Login/Listener
($S)Network configuration complete
OLC -NT
($S)Network configuration complete
```

4. Obtain status of link by entering the command:

   OLC Δ -BF Δ -LK Δ 1 (C/R)

   This gives a brief status, or enter the command:

   OLC Δ -STATΔ -LK Δ 1 (C/R)

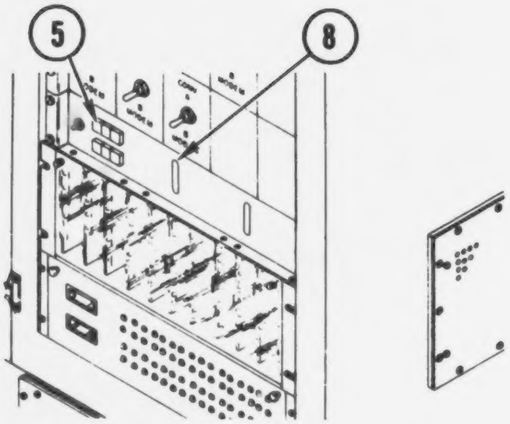
   which gives a full statement.

5. Press VOICE button, listen for dial tone.

6. Dial number of distant DAS3 (D/C).

7. Listen for high pitch modem tone; when you hear it, press DATA SEND button and hold until clear to send LED is lit over slot 13..

8. Monitor DAA observation port. If DAA indicator is lit, troubleshoot (Table 3-1).



9. Transfer data as appropriate under RNP procedures. (See data transfer procedures Appendix E) or send test message. Under ($S). Enter:

   Δ C Δ:$H: (C/R)

   Then enter

   RDN (C/R)

   Send Message:

   SMΔ node# ARE YOU RECEIVING? (C/R)

<u>Disable</u>

1. Disable the link when data transaction is complete. Under ($H) Enter:

   Δ C Δ:$S: (C/R)

   OLC Δ -D1Δ -LK Δ 1 (C/R)

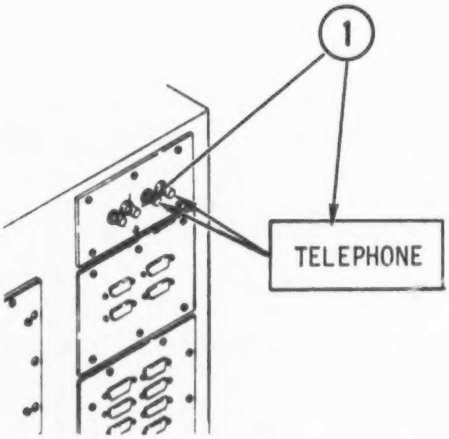
2. Check console screen. System should respond with:

   LINK DISABLED

2-62. CONNECT/DISCONNECT DAS3 (D/C) INTERACTIVE TERMINAL

NOTE

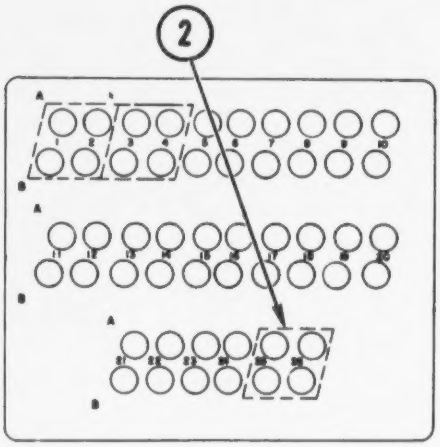
DAS3 (D/C) ADP system configured with mailbox procedures for ACU 01 can be connected to remote KVDTs by telephone. Remote KVDT operator's device must interface with a modem compatible to dialer board in slot 15 and modem board in slot 16 of quasi-analog modem assembly. Your DAS3 (D/C) can be accessed by manual call/manual answer or by manual call/auto answer. Remote operator must know site specific requirements such as login procedures to make connection. To have your DAS3 (D/C) accessed in auto answer mode, you need only have your voice data buttons in data mode. You need not communicate with remote operator if he knows login procedures.



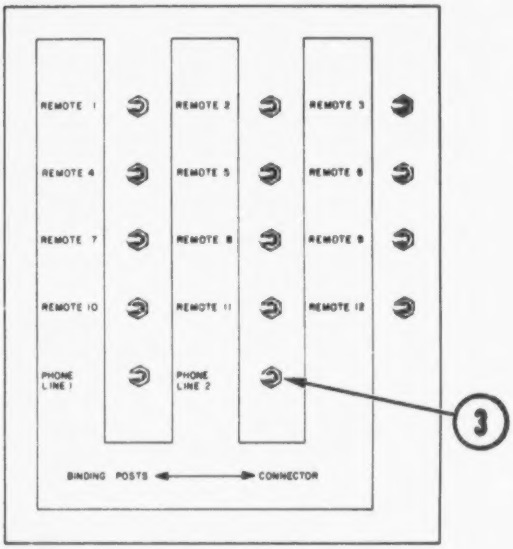
Connect

1. Install phone on inside binding posts 3 and 4, pair 26 on B cabinet.

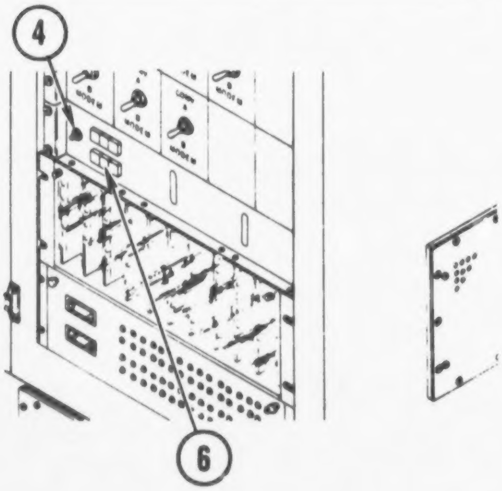
2-62. CONNECT/DISCONNECT DAS3 (D/C) INTERACTIVE TERMINAL (CONT)


2
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26

2. Ensure phone lines are connected to binding posts pair 26 at signal entrance panel.


REMOTE 1
REMOTE 2
REMOTE 3
REMOTE 4
REMOTE 5
REMOTE 6
REMOTE 7
REMOTE 8
REMOTE 9
REMOTE 10
REMOTE 11
REMOTE 12
PHONE LINE 1
PHONE LINE 2
3
BINDING POSTS ◄——► CONNECTOR

3. Set toggle switch at CONNECTOR/ BINDING POST panel to BINDING post.



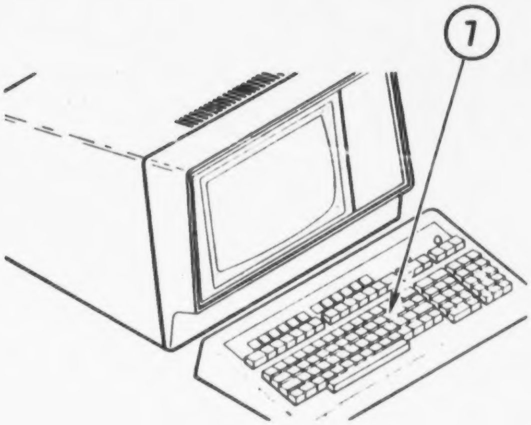
4. Set TWO WIRE/FOUR WIRE switch to two wire.

5. Telephone remote operator.

6. Coordinate efforts.

   - If you are sending, on count of three, press DATA SEND button while he switches to DATA. Hold data send button in until CTS light on board 16 of quasi-analog modem assembly lights.

2-62. CONNECT/DISCONNECT DAS3 (D/C) INTERACTIVE TERMINAL (CONT)



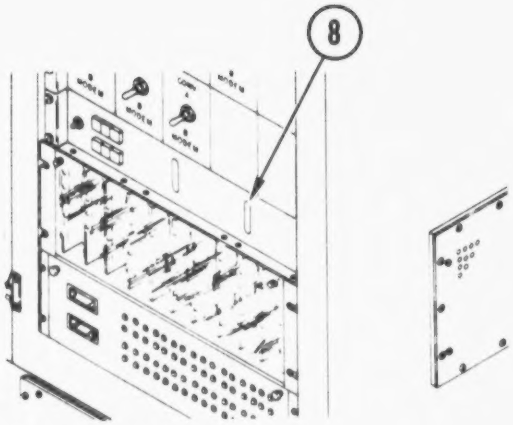
NOTE

When connection is made, remote operator's KVDT screen will respond with:

LISTENER FOR TERMINAL ACTIVATED

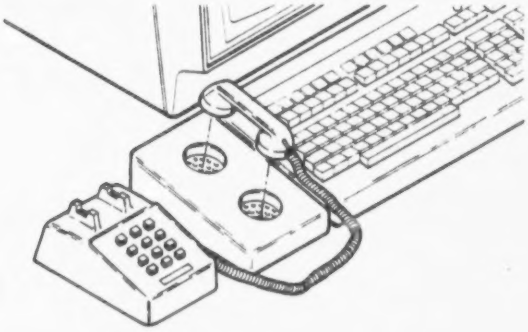
7. Transfer data as appropriate or send test message such as:

SMM Δ ACU01 Δ MESSAGE (C/R)



8. Monitor DAA observation port for pair 26.

   - If DAA indicator is lit, there is trouble on line. Troubleshoot (Table 3-1).

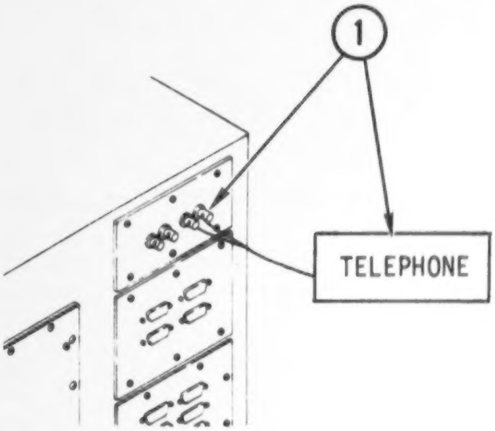


Disconnect

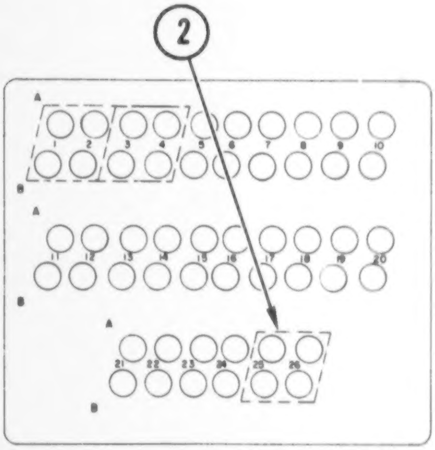
NOTE

When remote operator hangs up, connection is broken.

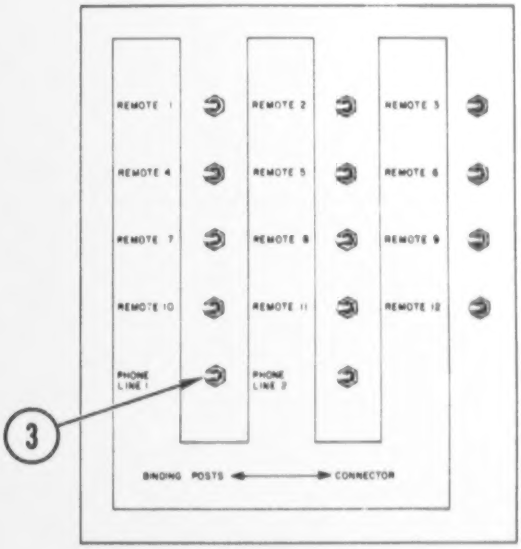
2-62. CONNECT/DISCONNECT DAS3 (D/C) INTERACTIVE TERMINAL (CONT)


1
TELEPHONE

1. Disconnect phone from binding posts 3 and 4 (pair 26) and install on binding posts 1 and 2 (pair 25) on B cabinet.


2
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26

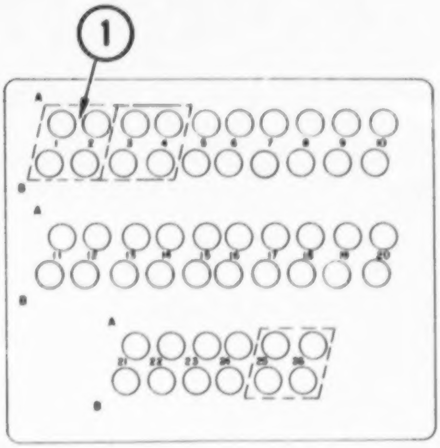
2. Disconnect phone lines from binding posts pair 26 and install on binding posts 25 at B cabinet signal entrance panel.


REMOTE 1
REMOTE 2
REMOTE 3
REMOTE 4
REMOTE 5
REMOTE 6
REMOTE 7
REMOTE 8
REMOTE 9
REMOTE 10
REMOTE 11
REMOTE 12
PHONE LINE 1
PHONE LINE 2
3
BINDING POSTS
CONNECTOR

3. Set pair 25 toggle switch at signal entrance panel to binding post.

4. Resume normal operation.

2-63. ENABLE/DISABLE AUTODIN CONNECTION


1
A
B
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26

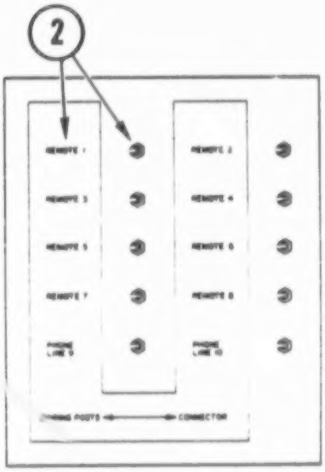
NOTE

AUTODIN procedures will be both application and site specific. SOPs will be your guide to data transfer over AUTODIN. Ensure that the AUTODIN applications program and related software driver are configured on disk packs.

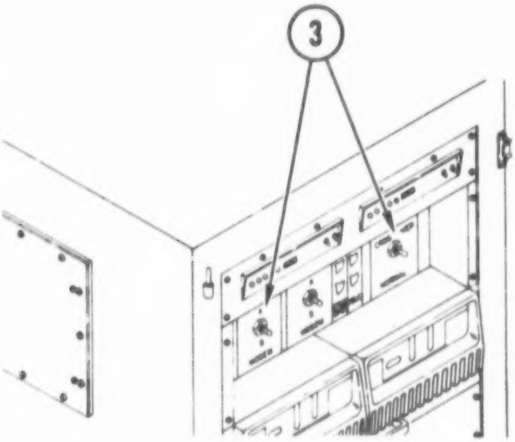
Enable

1. Ensure that communication lines are connected to A cabinet binding posts pairs 1 and 2:

   - Pair 1A and 1B are transmit
   - Pair 2A and 2B are receive

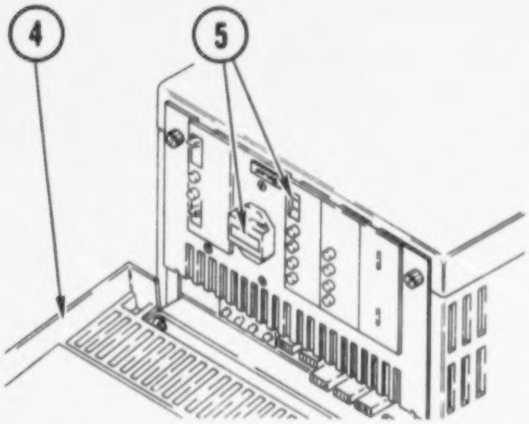

2
REMOTE 1
REMOTE 2
REMOTE 3
REMOTE 4
REMOTE 5
REMOTE 6
REMOTE 7
REMOTE 8
PHONE LINE 9
PHONE LINE 10
BINDING POSTS
CONNECTOR

2. Set remote 1 toggle switch to binding post position or to connector depending on the wiring configuration you selected.



3. If accessing AUTODIN through the left V.29 modem 1 place modem switch in modem position, place cross over switch in normal position. If using the left 1900G converter, put switch in converter position, crossover switch remains in normal position.

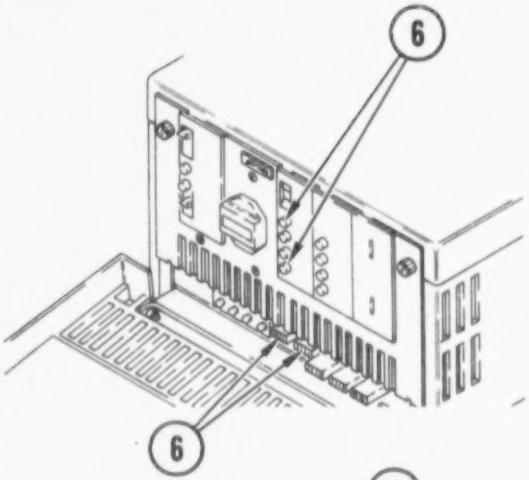
2-63. ENABLE/DISABLE AUTODIN CONNECTION (CONT)



4. Open front cover of left V.29 modem.
5. Set data rate thumbwheel to proper position which will cause the bps rate indicator to display the selected bps rate.

NOTE

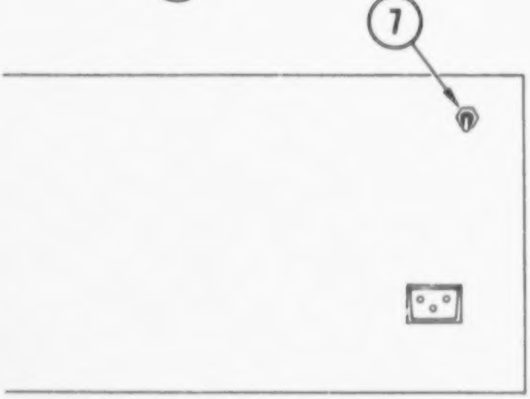
Bps rates are a variable, your applications program or SOPs will establish the bps rates for you.



6. Press MDM CHK and DATA clamp switches. GOOD DATA indicator will go on and stay on and TEST indicators will blink ON and OFF.
   - If either or both do not light, troubleshoot (Table 3-1)

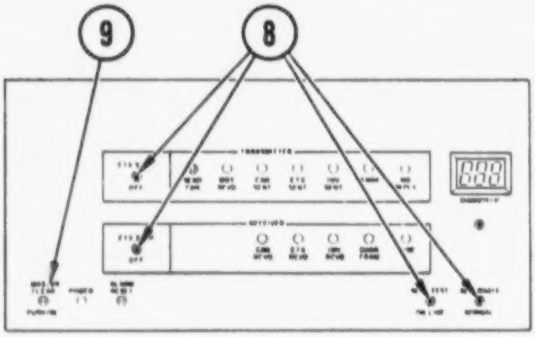
NOTE

If applications program and AUTODIN driver initialize the TLC go to step 10.



7. Power on the TLC. If indicator is already lit indicating power on, go to step 8.

2-63. ENABLE/DISABLE AUTODIN CONNECTION (CONT)



8. Set all toggle switches on TLC in down position for normal operation.

9. Initialize the TLC by pressing the MASTER CLEAR button. This will cause the TLC to:

   - Enter the initialization state
   - Clear buffer memory
   - Send an advisement of initialization to the console terminal, interrogate the switch positions of the SELF TEST/ON LINE, ALTERNATE/NORMAL, and DIAGNOSTIC switches and operate accordingly
   - Cancel and/or reject any messages in progress at the time

NOTE

Once the TLC is activated, the following sequence is sent to the CPU and the console terminal requiring you to determine your transmission parameters.

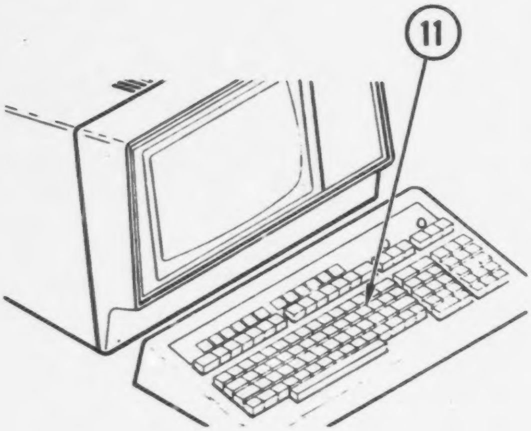
SOH = Start of Heading
S-or-O - Self test or on-line
ENQ = Enquiry
ETX = End of text

10. Determine the parameters according to your supervisor's instructions, SOPs or the applications program being used.

Parameter 1: Block-by-block
Continuous
Binary data
ASII data

Parameter 2: Termination codes

2-63. ENABLE/DISABLE AUTODIN CONNECTION (CONT)



11. Begin transmission when clear to send indicator is lit. Enter an appropriate transmission message:

$$\text{SOH }(81)\,\Delta\begin{matrix}H\\ \\ D\end{matrix}\Delta\text{Header Data}$$

- SOH = start of header
  H = Narrative
  D = Data

NOTE

Since the TLC does not validate message content, it is necessary to send valid header and trailer information; otherwise the ASC (AUTODIN Switching Center) will reject the message.

12. Upon completion of data/message transfer, disable the AUTODIN connection at the console terminal by entering the appropriate command.

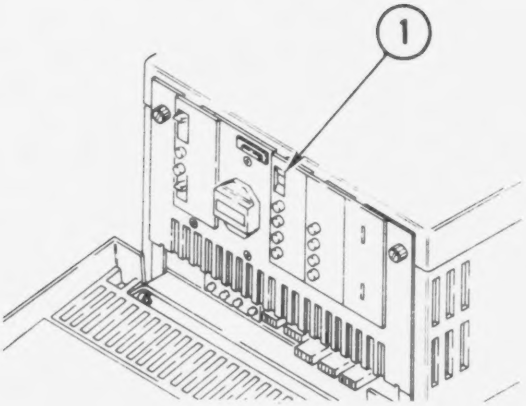
NOTE

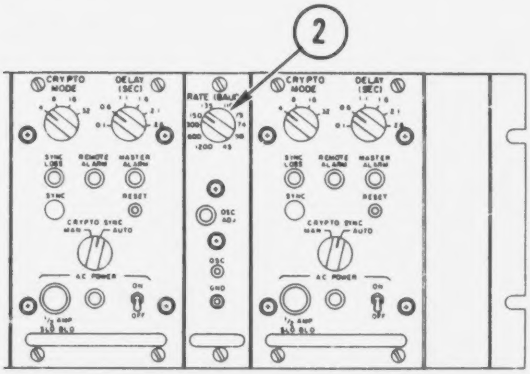
It is not necessary to power off the TLC to resume routine operations.

Disable

1. Ensure all data transmissions have been completed.
2. Disconnect communication lines to binding posts pairs 1 and 2.

2-64. SET BPS RATES




2
CRYPTO MODE
DELAY (SEC)
RATE (BAUD)
SYNC LOSS
REMOTE ALARM
MASTER ALARM
SYNC
RESET
CRYPTO SYNC
MAN
AUTO
OSC ADJ
OSC
GND
AC POWER
ON
OFF
1/2 AMP SLO BLO

NOTE

Bps rate settings for data transmission will be determined by site specific SOPs. Remote operators direct connected to the DAS3 (D/C) can change their bps rates and transmit between 1200 and 9600 bps. The system will automatically adjust to the bps change. Anything outside this range requires the system administrator to reconfigure the CLM user file.

1. For DAS3 (D/C) to DAS3 (D/C) operation, predetermine the bps rate for data transfer and set bps rate accordingly (para 2-56). The V.29 modem has five settings.

Position	Bps Rate	Baud Rate
1	9600 Bps	2400
2	7200 Bps	2400
3	7200 Bps	2400
4	4800 Bps	1600
5	2400 Bps	1200

2. To change baud rates on the crypto auxiliary equipment, turn dial to rate determined by your supervisor. Set baud rate dial for asynchronous transmission by turning dial to proper rate.

Position	Baud Rate
1	45
2	50
3	74
4	75
5	110
6	135
7	150
8	300
9	600
10	1200

NOTE

The 103J modem has a baud rate that is preset and operates within 0-300 bps.

2-65. PATCH TO ALTERNATE CHANNEL

NOTE

Any electrical/electronic or interconnection wiring faults in any activated communications channel can be overcome by simply using the patch cord. The patch cord allows you to disconnect that portion of the faulted channel where the fault is located and permits you to replace it by connecting the patch cord to any unused channel.

1. Determine whether channel is active (para 2-66).

2. Select unused channel or channel that can be temporarily disabled to continue priority data transfer, then plug one end of patch cord into the unused channel's DTE and other end into the faulted channel's DCE.

NOTE

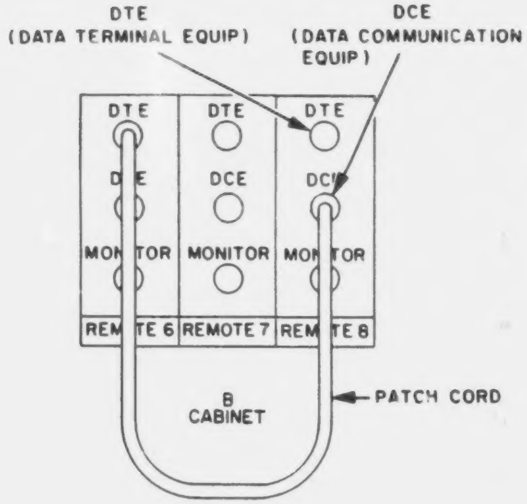
Illustration indicates that the CPU input to channel 6 is being routed to channel 8. There will be no input on the device connected to remote 6. Remote 8 replaces remote 6 but maintains the identity of remote 6.

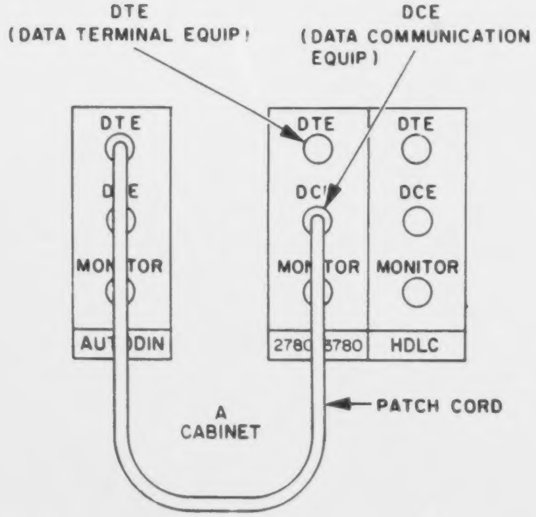
3. To use the bulk data transfer modem, (V.29 right modem) or the right 1900G converter as a backup for the AUTODIN modem (V.29 left modem) or the AUTODIN left converter (1900G converter), patch from the AUTODIN DTE to the DCE of 2780/3780 patch module and set the crossover switch to crossover.

- If the AUTODIN channel is not being used, it can also be used as a backup channel by reversing the procedure

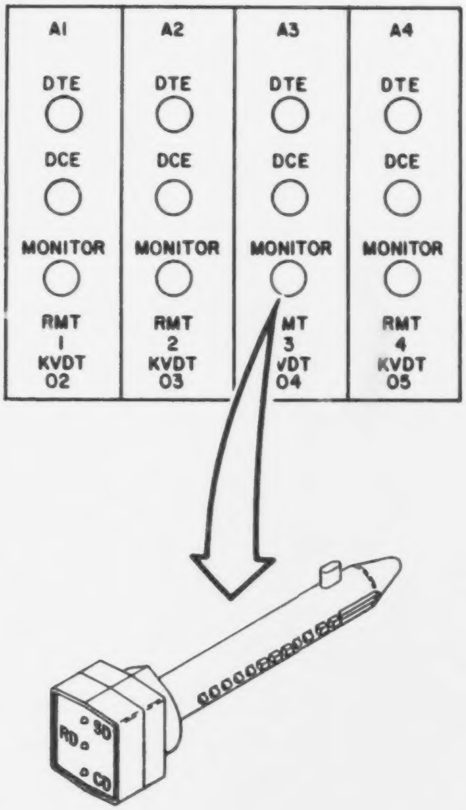
NOTE

Patching over channels should only be considered as a temporary measure. If a channel fails, troubleshoot (Table 3-1), make the patch and notify maintenance personnel.


DTE
(DATA TERMINAL EQUIP)
DCE
(DATA COMMUNICATION EQUIP)
DTE
DCE
MONITOR
DTE
DCE
MONITOR
DTE
DCE
MONITOR
REM TE 6
REMOTE 7
REM TE 8
B CABINET
PATCH CORD


DTE
(DATA TERMINAL EQUIP)
DCE
(DATA COMMUNICATION EQUIP)
DTE
DCE
MONITOR
AUT DIN
DTE
DCE
MONITOR
2780 3780
DTE
DCE
MONITOR
HDLC
A CABINET
PATCH CORD

2-66. MONITOR ACTIVITY ON DATA LINES


A1
DTE
DCE
MONITOR
RMT
1
KVDT
02
A2
DTE
DCE
MONITOR
RMT
2
KVDT
03
A3
DTE
DCE
MONITOR
MT
3
VDT
04
A4
DTE
DCE
MONITOR
RMT
4
KVDT
05
SD
RD
CD

NOTE

The monitor plug tells you whether there is data being transmitted over a channel in either the A or B cabinets. There are 14 patch modules in the B cabinet, 1 through 12 are for remote devices and 13 and 14 are for autocall. In the A cabinet, patch 1 is for AUTODIN, patch 2 is for 2780/3780 and patch 3 is for HDLC.

1. Insert monitor plug into bottom slot marked monitor.
2. Carrier detect (CD) indicator will light if a transmission is being effected through the channel
   - If data is being transmitted the SD indicator will be lit or
   - If data is being received (RD) will be lit
3. In the event there is trouble on the line, i.e., no carrier detect, or RD or SD Indicators are out, troubleshoot (Table 3-1).
   - See patching procedures para 2-65

2-67. ADP DEVICE FAILURE/TIMEOUT

a. Limited Operation. Failure of an ADP device during your shift may require you to operate on a limited basis if the failed device is not needed to process the job required at the time.

Your supervisor may decide to place low priority requests into a batch queue for processing later in the duty shift, and refer high priority requests to another DAS3 (D/C) in the area. In this way the system could still operate while the device is being repaired.

b. Device Timedout. A unit record device (card reader/punch, or printer) may be off line because it was not powered on, because it failed, or because it ran out of cards or paper. When a data processing order is issued to an off line device, or if it goes off line while the order is being processed, you are notified by a system message on your console screen. You then have five minutes to correct the condition, or the condition will be reported as an 0105 (device not ready) error. Error messages are covered in detail in paragraph 2-71.

c. CPU or Tech Power Failure. In the event of a technical power failure, or, if the CPU fails, the memory save and automatic restart unit in the CPU cabinet will preserve the contents of the CPU memory for two hours, provided the memory reset light is ON, and the control panel is locked.

d. Executive Disk Drive Failure. The DAS3 (D/C) is designed to use disk drive 0400 as the executive drive. If this drive fails you can run executive software on the next sequential disk drive (0480, 0500, 0600, 0680, 0700). Follow the procedures outlined in paragraph 2-53 to boot the system from an alternate disk drive.

2-68. CHANGING DAS3 (D/C) PHONE NUMBERS

Changing the telephone numbers and node numbers is not an operator responsibility. However, you can identify the telephone numbers and node numbers which your system recognizes (para 2-55). If you find your phone lists are inaccurate or outdated you must inform your supervisor. All data communication and exchanges using autocall/auto answer and the 2780/3780 channels require correct phone numbers and node numbers.

2-69. OPERATOR INTERFACE MANAGER (OIM) MESSAGES

The DAS3 (D/C) system communicates with you through a software component called the operator interface manager (OIM) which helps you control the data input/output. Detailed information is contained in appendix E. The OIM sees and processes both input and output messages for you.

In addition to helping you prioritize the order in which you will perform data processing, the OIM will issue error messages (table 2-6). These messages will appear on your console screen and do not have any numeric codes.

Table 2-6. Error Messages Issued by Operator Interface Manager (OIM)

Message	Meaning
GROUP id DID NOT ACCEP INPUT	Task group identified by id did not accept the last-entered input directed to it.
GROUP id DOES NOT EXIST	Input was directed to the task group by id and no such task group currently exists. The task group may have completed processing or the task group id may have been mistyped.
INPUT IGNORED, TIMED OUT	Typing of an input line was started but not completed within 5 minutes. Any input typed is discarded.
OPERATOR MESSAGE PENDING	A dual-purpose terminal under user control is in defined (-DEF) message and OIM is signalling its readiness to print a $S system message. All $S system output messages are backlogged.
INVALID COMMANDx	The command whose first character is x is invalid.
TERMINAL LINE RECONNECTED	The previously disconnected line between the terminal and the MLCP has been reestablished.
NO BREAK ORDER FOR id	The ΔC ΔBid (break) command is illegal for the task group identified by id.
NO QUERY FOR ANSWER n	Your input message includes the message number n; there is no outstanding output message with that number.
OUTPUT STALLED, QUERY ANSER REQUIRED	Task attempted to issue an output message but no message number available since there are already 10 outstanding messages. Task stalled until you respond to an outstanding message, and that message number becomes available.

2-70. SYSTEM MESSAGES

The DAS3 (D/C) software components generate error and status messages to help you keep the system operational. You are already familiar with one of those components, the Operator Interface Manager (OIM) (para 2-69). However other software components interact with the OIM as you are running application programs. These status messages and error codes as well as the methods for correcting them are covered in detail here.

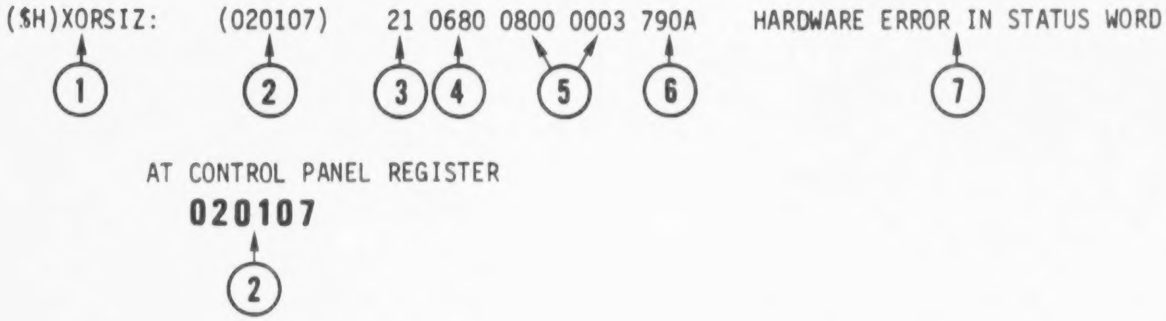
a. Types of Messages. System messages will show up on the lower portion of the console terminal just as an OIM message does, or it may appear on the register of the CPU control panel in the form of a six character error code. On the console terminal the code will usually appear with some text explaining the nature of the report or error. The error code consists of a two character prefix which identifies the portion of the software reporting the error and a four character hexadecimal code which, when translated, tells you what software detected the error and what part of that software detecting the error was responsible for it. Regardless of where the error code appears it will usually indicate software/hardware error or a human error (Physical I/O message). When you get an error message (fig. 2-35) you can recover using the procedure given in the message tables (tables 2-9 thru 2-14). Sometimes the error message points to a possible hardware fault and you may not be able to recover without the help of maintenance personnel. When this happens log the problem and tell your supervisor.

b. Software/Hardware Errors. Figure 2-34 is a typical software/hardware error message as it would appear on your console terminal, or as it would appear as on the control panel register.

c. Breaking Down the Error Code. In the event no text is available to alert you to the immediate cause of an error what follows will show you how to translate the error code.

(1) The first two characters of the six character error code identify the software which reported the error (table 2-7). The next four characters are a hexidecimal code. The first two characters of the hexidecimal identify the software that detected the error and the last two refer to that area within the software that pinpointed the error. For the example given in figure 2-35, the 02 indicates the system, the 01 indicates equipment and the 07 indicates logical communication. Table 2-7 lists the possible software error code identifiers and their locations in the system.

(2) The hexadecimal which is the last four characters of the error code indicates the software/hardware responsible for the error. The XX represents the error message identifiers in error tables.



```
($H)XORSIZ:    (020107)    21 0680 0800 0003 790A    HARDWARE ERROR IN STATUS WORD

          AT CONTROL PANEL REGISTER
            020107
```

① Reporting Component - Indicates the software routine detecting the fault. In this example it is the system exerciser.

② Software Error Code - Tells you which component of software was affected by the error. In error code 020107, the 02 represents the code for the software component reporting the error (table 2-7 gives a complete list of software reporting codes). The last four characters are a hexadecimal code that represents one of nine hardware based faults (table 2-8).

③ Task Level Number - Interrupt level of the software component reporting the error.

④ Hardware Channel - Gives the channel number of the faulty equipment when a hardware error is indicated. In this example, it is a disk drive on channel 0680.

⑤ Software Status Word - Consists of either one or two hexadecimal codes which further pinpoint an error within the hardware/software. When two hexadecimal codes show up, it indicates a disk drive caused error. When one hexadecimal code appears it usually means a tape drive or printer caused error.

⑥ Sector Number - Indicates disk pack sector number where error is occurring. This code appears only when a disk pack has a bad sector.

⑦ Text Message - In this example the text message confirms that a hardware fault is present.

Figure 2-34. Typical System Message Reporting Hardware Error

Table 2-7. Error Message Identifiers

Code	Component
01	Physical I/O
02	File System
03	Trap Handler
04	Clock Manager
05	Semaphore Functions
06	Memory Manager
07	Logical Communications
08	Executive
0B	CLM Communications
0C	Message and Presentation Services
10	Assembler
11*	Linker
12	Utility Programs
13	Configuration Load Manager
16	Loader
17	System Commands
19	Editor
1F	On Line T & Vs
21	Patch
22	File Transmission Facility (FTF)
23	Macro Processor
26	COBOL Compiler
27	COBOL Object-Time Routines
28	RPG Compiler
29	RPG Object Program Routines
2C	Data Entry Facility-I
2D	HASP File Transmission

---

* Code 11 is used for all codes/components not listed in this table.

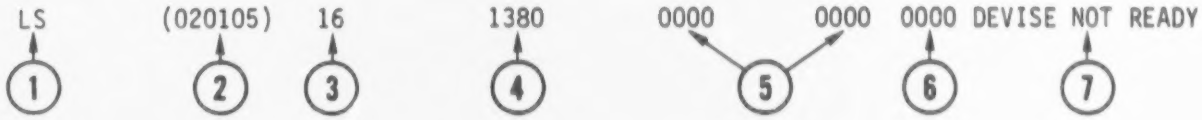
Table 2-7. Error Message Identifiers -- Continued

Code	Component
2E	2780/3780 File Transmission
2F	3270 File Transmission
31	Sort and Merge
33	Remote Batch Facility
34	Multi-line Communications Processor Dump (DUMCP)
38	Call/Cancel Errors
39	Login/Listener
3B	Error Logging
3D, 3E, 3F	Display Processing
40	Transaction Control Language Processor (TCLP)
41	Transaction Control Language (TCL)
	Compiler
43	BASIC Interpreter, Interpreter/Compiler and Run-Time
4A	Checkpoint and Restart
4B, 4C	Data Entry Facility-II
54	Logical HDLC
55	Node Control
56	Remote Concentration Facility
99, 16	Initialization Halt
	Operator Interface Manager
	Multi-User Debugger & SD DEBUG
A0-7F	Reserved for System Software Use
80-EE	User-defined
F0-FF	Reserved for System Software Use

Table 2-8. Hardware Fault Indicators

CODE	Message Indicated
XX0107	Hardware error. Check Channel number to help identify hardware.
XX010A	Controller failure. Check connectors, cables etc.
XX010B	Hardware error. Check modem, comm lines etc.
XX023E	Disk write error.
XX0311	Memory or megabus failure. Run T & V.
XX0318	Memory or megabus failure. Run T & V.
XX083F	Disk drive error.
XX1607	Disk drive error.
XX171E	Disk drive error.

d. Physical I/O Messages. Physical I/O messages are similar to system messages in that they help you keep the system operational by informing you that an operator or some other physical (i.e. human) error has been injected into the system. Like a systems message, a physical I/O message (fig. 2-35) is displayed on the console terminal.



```
LS      (020105)  16        1380        0000        0000  0000 DEVISE NOT READY
```

① Component Name - Identifies task in which error was detected. LS from commands manual means List Names.

② Error Code - First two characters are software report, last four are hexadecimal code.

③ Task Level Number - Interrupt level of program where error occurred.

④ Hardware Channel - Gives the channel number on which error occurred.

⑤ - ⑥ Software Status Word/Sector Number - The fact that all entries are 0000 indicates the error created was physical as opposed to software originated.

⑦ Text Message - Written text spells out the physical error i.e. device not ready. I/O order was issued to a device that was not ready or was off line.

Figure 2-35. Sample Physical I/O Message

e. Error Code Tables. Tables 2-9 thru 2-14 list the codes, messages and the probable cause and effect of physical I/O errors as well as what corrective action you should take. The XX prefix of the error code refers to the software application affected.

Table 2-9. Typical Physical I/O Error Codes and Messages

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
XX0104	INVALID ARGUMENT(S) in Input/Output request block (IORB)	Invalid arguments passed to the physical I/O Manager (invalid function or buffer address)	IORB not accepted	Reissue IORB with valid arguments (Tell your supervisor)
XX0105	DEVICE NOT READY	I/O order issued to a device that is not ready or off line.	Task suspended until device is ready	Make device ready and and on line if required.
XX0106	DEVICE TIME OUT-NO INTERRUPT	An expected event did not occur within a specified time period. Usually a hardware problem or operator has not typed at the terminal for a long period of time	Device cannot be used or system halts due to unfinished input from terminal	Tell your supervisor maintenance is required. Enable the device if possible and reboot the system At the terminal, ignore the message and resume typing the input
XX0107	HARDWARE ERROR IN STATUS WORD	Read/Write hardware error occurred in the software status word	I/O does not execute correctly. If device is a printer, a halt occurs	Check the status bits in the software status word. Hardware logic communication error. Retry (press E (execute))

Table 2-9. Typical Physical I/O Error Codes and Messages -- Continued

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
XX0108	DEVICE S/W DISABLED	Disconnect order issued before connect order aborted	Disconnect not effective-channel still connected.	Wait a second or two and then retry the order
		A second connect order issued while a prior connect is being processed	Second connect does not succeed	None, channel already connected
XX0109	FILE MARK ENCOUNTERED	End of file (EOF) encountered when a mag tape or card reader was processed	The read or write operation stops	Check position of mag tape or card reader EOF card.
XX010A	CONTROLLER UNAVAILABLE	Non-communications device controller not turned on or malfunctioning	Controller is down	Turn on device and run self-test
		Communicating controller refuses to initialize	Controller is down. Failure or error message will be displayed on terminal	Tell your supervisor maintenance is needed
XX010B	DEVICE UNAVAILABLE	Cable interconnection to terminal or remote device broken	Device down	Reconnect device and check operation
XX010C	INCONSISTENT REQUEST	Duplicate connect or disconnect order	System ignores request	Retry the requests in proper sequence
XX010D	MAG TAPE EOT MARKER DETECTED	End of tape reached during write or write-tape-mark operation	Write operation fails	Continue write operaation on next tape reel

best copy available

Table 2-9. Typical Physical I/O Error Codes and Messages -- Continued

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
XX010E	UNEXPECTEDLY POSITIONED AT MAG TAPE BOT MARK	A request to position the tape backward one block fails because tape was positioned in block just ahead of BOT or-request fails because tape already positioned in back of BOT marker	Either there is no block over which to backspace or-there is no tape mark	Check BOT marker position Replace marker or reposition tape
XX010F	END OF TRANSMISSION RECEIVED	Information message only	None	None
XX0110	TIMEOUT ON CONNECT	Request from a terminal or remote-connect device connect not completed within the specified time period.	Watch dog timer times out. The device is not connected	Retry the connect request
XX0111	DEVICE HAS WRITE PROTECT	Write attempt to read-only device	Write attempt fails	Write to nonprotected device or change device to read/write and retry

Table 2-10. Typical Clock Manager Error Codes and Messages

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
XX0401	ILLEGAL DATE TIME OR INTERVAL VALUE	Zero value for cyclic clock request block (CRB) or too large an interval requested	Request is refused	Specify the correct value
XX0402	INVALID RECEIVING FIELD LENGTH	Invalid external date/time field length input	Date/time is not converted	Specify correct length
XX0403	ILLEGAL INTERVAL UNIT SPECIFIED	Value for CRB invalid	Request is refused	Specify correct interval unit
XX0404	REFERENCED CRB NOT FOUND ON CLOCK QUEUE	Attempt made to cancel clock request not on queue.	No request is cancelled. Information message only.	None
XX0405	INVALID CRB FORMAT	Invalid CRB format entered. (Absolute time specified for cyclic CRB)	Request is refused	Specify a time interval in milliseconds for cyclic CRB
XX0406	CLOCK REQUEST BLOCK DEQUEUED	CRB dequeued by another task during wait. Clock request did not mature.	Information message only	None
XX0407	INVALID EXTERNAL DATE	Invalid date entered	Specified date/time not converted to internal format	Specify correct date/time

Table 2-11. Typical Logical Communications Error Codes and Messages

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTIONS
XX0701	DATA CHANNEL NOT CONFIGURED	Data channel requested not available	Line disconnects (SDL command terminates)	Change channel number
XX0702	AUTO CALL UNIT CHANNEL NOT CONFIGURED	Auto call channel not available	Line disconnects (SDL command terminates)	Change channel number
XX0703	AUTO-DIAL IN PROGRESS	Auto call unit requested is busy	Line disconnects (SDL command terminates)	Retry call later
XX0704	INV ACU DIGIT	Auto call unit (ACU) phone number contains invalid digit Invalid digits are 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, -, *, #)	Line disconnects (SDL command terminates) at the error	Correct phone number and retry.
XX0705	MAXIMUM # DIGITS EXCEEDED	More than 16 digits specified in ACU phone number	Line disconnects (SDL command terminates) at error	Specify fewer digits and retry

Table 2-12. Typical System Command Error Codes and Messages

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
XX1701	ILLEGAL EC DIRECTIVE	EC control directive invalid or called out bad label	EC file aborts	Respecify correct EC control directive
XX1702	ILLEGAL NUMBER OF ARGUMENTS	Not enough arguments specified	Control returns to command level	Check command format and reissue the command
XX1703	NON-NUMERIC CHARACTER IN A NUMERIC ARGUMENT	Non-numeral specified in an argument requiring only numeric values	Control returns to command level	Respecify correct argument
XX1704	ILLEGAL ARGUMENT LENGTH	Argument too long. Error is usually in pathname	Control returns to command level	Respecify command with proper length arguments
XX1705	ILLEGAL GROUP ID	Invalid group id specified	Control return to command level	Verify group validity, then correct id
XX1706	OPERATOR COMMAND NOT DEFINED	Command cannot be used for system group	Control returns to command level	Specify the command correctly under some other task group
XX1707	ARGUMENT NOT RECOGNIZED	Invalid argument specified or argument incorrect	Control returns to command level	Reissue command with correct argument
XX1708	UNEXPECTED NULL ARGUMENT	Null value specified for an argument which cannot be null	Control returns to command level	Reissue command with non-null argument values where required

Table 2-12. Typical System Command Error Codes and Messages -- Continued

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
XX1709	ILLEGAL COMBINATION OF ARGUMENTS	Arguments were specified that are incompatible	Control returns to command level	Reenter command with consistent arguments
XX170A	COMMAND NOT DEFINED	Specified command may only be issued from the system task group	Control returns to command level	Reenter the command from $S group
XX170B	ILLEGAL CHARACTER IN SYMBOLIC START ADDRESS	Invalid character specified in symbolic start address of the -SHR argument of either CG or SG command	Control returns to command level	Reenter the command with correct symbolic start address
XX170C	SYMBOLIC START ADDRESS NOT FOUND	Illegal start address of -SHR argument task assigned to LRN in either CG or SG command	Control return to command level	Reenter the command with correct symbolic start address
XX170D	SYMBOLIC DEVICE NAME NOT DEFINED	Symbolic device name not recognized by program	Control returns to command level for correction or reconfiguration	Reenter the command with corrected device name or tell your supervisor that the program is faulty
XX170E	NO MOUNT PENDING	Cancel mount request (CMR) command issued for a device with no request pending	Device name may be entered wrong or the mount condition may have been satisfied. The control returns to command level	Enter the correct device name to satisfy the mount condition

Table 2-12. Typical System Command Error Codes and Messages -- Continued

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
XX170F	NONHEX CHARACTER IN A HEX ARGUMENT	Invalid digit in SSDL telephone number	Control returns to command level	Respecify the call correctly using valid digits
XX1710	COMMAND NOT VALID IN A BATCH TASK GROUP	Command not allowed in batch operation	Command is not performed. Control returns to operator	Reenter command from a non-batch group
XX1711	REDUNDANT ARGUMENT	Argument specified more than once	Control returns to operator	Reenter command with proper arguments
XX1712	REQUIRED ARGUMENT MISSING	Argument necessary to the execution of the command not included	Control returns to operator	Reenter command with all required arguments
XX1713	EC FILE LABEL NOT FOUND	(* G) directive used in EC file with incorrect or missing label	EC file aborts. Control returns to operator	Edit EC file and put in missing label name or correct it
XX1715	START_MAIL: MESSAGE FACILITY ALREADY ACTIVE	Start mail command issued with two arguments (Pathname and number of active message ids) and a second command issued with different arguments	Second start mail command is rejected. Control returns to operator	Make sure that arguments agree if two commands, or that only one command is entered
XX1716	ARGUMENT OUT OF RANGE	Invalid values specified in argument	Control returns to operator	Reenter command with correct argument values

Table 2-12. Typical System Command Error Codes and Messages -- Continued

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
XX1717	ATTEMPT TO DEFINE EC AS THE LEAD TASK	CG or SG command specified EC as lead tasks bound unit. EC must be started at a specific entry point (EC ZXECL)	Control returns to operator	Specify -EFN if -EFN is defaulted, correct entry point will be used
XX1720	BU NOT SHARABLE	Bound unit not linked with both SHARE and SYS directives. Specific to LOAD/UNLD commands	Error message comes up. Control returns to operator and the bound unit is not loaded	Use Link or Patch bound unit to be sharable
XX1721	BU NOT PREVIOUSLY LOADED BY OPERATOR	Bound unit specified by UNLD command not previously loaded by LOAD command	Control returns to operator. Bound unit not loaded	LOAD the bound unit and and reenter UNLD command
XX1722	INVALID FILE FORMAT	Linked BU not a standard BU file	Control returns to operator	Specify file correctly and relink
XX1723	INVALID MAILBOX HEADER RECORD	Mailbox header contains unrecognized contents	Message (mail) deleted. Information message only	None
XX1724	NO MATCH ON * NAME OR ILLEGAL ENTRY NAME	Using star names option, no file found in search that matched or, invalid name entered on command line	Control returns to operator	Reenter correct command

Table 2-12. Typical System Command Error Codes and Messages -- Continued

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
XX1725	LISTENER IS INACTIVE	SET-LISTEN command terminated. Listener not active	Control returns to operator	Reenter command to enable the listener
XX1727	ILLEGAL USE OF OPER COMMAND	OPER command issued by invalid group	Command not executed	Reenter command with string option from ($S) or special application (user) group id only
		-OR-		
		OPER command issued but no dual terminal available (not configured)	Command not executed	Configure the LRN 0 terminal to dual-purpose and reboot

f. Sort/Merge Messages. One of the key elements in the DAS3 (D/C) system software is the Sort/Merge program which provides sort and merge capabilities tailored to specific applications. The Sort/Merge capability reads task descriptions, adjusts to the task in a short amount of time and performs the job. The Sort/Merge capability will establish the initial order of a newly created file, arrange a transaction file into a master file order, correct minor sequence deviations, and arrange data into well ordered files. As a DAS3 (D/C) operator, many of the functions you will perform will deal with file procedures. Sorting and merging of files are application specific, so the work will be performed for you by the system. You may never encounter an error code that does not have accompanying text to help clarify the error. However, you should be familiar with the sort/merge error codes and what invoked the error. Common sort/merge error codes are contained in Tables 2-13 and 2-14.

Table 2-13. Typical Sort/Merge Error Codes and Messages

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
XX3121	PARAMETER SYNTAX ERROR	Syntax error in S/M command line or description	S/M terminates. A separate message appears for each syntax error	Correct error. Reenter command
XX3122	REQUIRED PARAMETERS MISSING	Argument missing from S/M command	S/M terminates. Message identifies error	Add missing argument to command and reenter command
XX3123	TOO MANY PARAMETERS	Too many arguments in S/M command	S/M terminates. Message identifies error	Delete the error and reenter command
XX3124	RECORD TOO SMALL, REC NUMBER nnnnnn	Variable length record (nnnnnn) too short to support key fields, ARRange fields or record selection fields. Error occurs if S/M description does not match file, or file contains erroneous data	Record is bypassed and S/M continues unless next nine records are too short, then S/M terminates	Compare S/M against file and correct. Use -TK or -PATn option (if compatible) and reenter S/M command
XX3125	INSUFFICIENT MEMORY	Not enough memory available to support S/M	S/M terminates	Rerun the S/M under another task group when traffic is lighter, or tell your supervisor operation failed.
XX3126	VALUE OR LENGTH INCONSISTENCY	Argument specified is inconsistent with another S/M characteristic	S/M terminates after full checkout	Correct S/M command and reenter

Table 2-13. Typical Sort/Merge Error Codes and Messages -- Continued

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
XX3128	SEQUENCE ERROR	Invalid data detected in writing output file. (alpha-or numeric where S/M expects to find a sign)	Output file is closed. S/M terminates	Rerun the program. If error does not clear, tell your supervisor program is in error
XX3129	DATA GAIN	Number of records read does not agree with number being written into output file	Excess records will not transfer. Output file is closed. S/M terminates.	Rerun the program. Use a different -SZ parameter for SORT. If error does not clear, tell your supervisor program is in error.
XX3130	DATA LOSS	Data missing. Fewer records written to output file than S/M expected	Output file is closed. S/M terminates	Rerun the program. Use a different -SZ parameter for SORT. If error does not clear, tell your supervisor program is in error
XX3131	INCOMPLETE COMMENT	Incomplete comment in S/M description. Comment delimiters, (1) not in pairs or comment occurred within S/M description word	S/M terminates	Enter missing delimiter or delete misplaced delimiter in S/M description and restart S/M
XX31B0	ILLEGAL SIZE FOR XXXX	Size specified in a KEYS, INCL, or OMIT statement statement wrong for data type XXXX	S/M terminates	Correct the size in the statement causing error and restart S/M
XX31B1	ARR ILLEGAL WITH -AK, -AD or -TK	ARRange statement included with any of the listed options	Sort terminates	Delete ARR statement, or, delete -AK, -AD, or -TK parameters

Table 2-13. Typical Sort/Merge Error Codes and Messages -- Continued

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
XX31B2	KEY OUTSIDE ARR FIELDS	KEY field outside the number of bytes specified for the field of the ARR statement	S/M terminates	Change KEY or ARR field size to make them compatible and restart S/M.
XX31B3	INPUT RECORDS TOO SMALL	Input file record size too small to support specified KEY, ARR, or the record selection fields. Error occurs if: ● S/M description does not match file ● Wrong file mounted	S/M terminates prior to Read Operation	Compare sort or merge description to file description. Correct inconsistency and restart S/M
XX31B5	INPUT FILE CANNOT SUPPORT - TAG - AK - AD - PAT - TK	Input file attributes not consistent with requested option (e.g., tag sort request for non-disk input file, file to short etc.)	S/M terminates	If file to be sorted is OK, delete the option and restart S/M
XX31B7	INCL WITH OMIT ILLEGAL	S/M statement contains both INCL and OMIT	Contradictory S/M terminates	Delete one statement and correct the rest. Restart S/M
XX31B8	INCOMPLETE LITERAL	Single quote delimiter not specified at the end of a literal value.	S/M terminates	Add in missing quote and restart S/M

Table 2-13. Typical Sort/Merge Error Codes and Messages -- Continued

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
XX31B9	INCL/OMIT LITERALn ILLEGAL	INCL or OMIT statement includes invalid literal where n character or value is inconsistent with data type specified for literal	S/M terminates	Correct literal or data type specified for literal and restart S/M
XX31BA	LIT CHARS EXCEED 128	Total number of characters in literal exceeds 128	S/M terminates	Correct the number of characters in the literal and restart S/M
XX31BB	ILLEGAL DUPLICATE FILE NAME	Same file name, appears more than once on the FILES statement (same file designated as both work file and input file)	S/M terminates	Correct FILES statement in S/M description and delete duplicate file name Restart S/M
XX31C1	CALL SEQUENCE ERROR	Subroutine calls sequence is invalid.	S/M terminates	Rerun the program for callable sort. If error does not clear, tell your supervisor.
XX31D5	ATTRIBUTE ERROR INPUT EXCEPTION FILE	Two or more input files, or exception file and an input file have conflicting attributes	S/M terminates	Error in input file, create exception file with valid attributes then run a separate sort and merge. Error in exception file, recreate a new exception file using a proper attribute

Table 2-14. Typical Input/Output Sort/Merge Error Code Messages

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
3102XX	FILE NOT FOUND INPUTn OUTPUT WORKn EXCEPTION	File not found, possibly due to incorrect file name	S/M terminates	Correct file name(s) and restart S/M
3102XX	OPEN ERROR INPUTn OUTPUTn WORKn EXCEPTION SD MD	Error occurred during the process of opening file	S/M terminates	Correct file according to error description
313103	CLOSE ERROR INPUTn WORKn OUTPUTn EXCEPTION	Indicated file cannot be closed.	S/M terminates	If valid input or output file exists, the error may be ignored temporarily. If not, rerun the S/M to create a valid file by correcting the indicated file
31310D	READ ERROR INPUT	Error occurred during read record attempt from open file or a media error occurred during SORT	S/M terminates	You must interpret this as a hardware error flag. Run self-diagnostic tests and tell your supervisor
313109	WRITE ERROR WORKn OUTPUT EXCEPTION USOUT	Media error. File cannot be expanded	S/M terminates	If error is in output file, use ARR statement to make smaller output records. Otherwise, tell your supervisor

Table 2-14. Typical Input/Output Sort/Merge Error Code Messages -- Continued

ERROR CODE	MESSAGE	PROBABLE CAUSE	EFFECT	CORRECTIVE ACTION
310205	WORK FILE(S) TOO SMALL, WORK REC WRITTEN nnnnnn	Not enough work file space to complete the SORT, nnnnnn=number of the last written work record	Sort terminates	Recreate larger work file(s). If space is not available, delete unwanted files.
313128	SORT DETECTED ERROR	Internal consistency check failed, record is out of sequence	Sort terminates	Rerun the sort using a different -SZ parameter. If the error does not clear, tell your supervisor.
3108XX	UNRECOGNIZED OPERATING SYSTEM	Sort procedure does not match software executive program	Sort terminates	Select correct program or tell your supervisor program failed
3111XX	LINKAGE ERROR	Subroutine call sort fails	Sort terminates and returns error code to caller	Notify your supervisor
3117XX	SYSTEM ERROR	S/M request not executed	S/M terminates	Rerun program. Use a different -SZ parameter for sort. if the error does not clear, tell your supervisor.

3111XX* Anytime an 11 follows the first two characters a linker error is indicated.

2-71. RESTART SYSTEM AFTER POWER FAILURE

When a system failure takes place due to a power outage you can restart the system by performing the following steps:

1. Allow approximately 15 minutes after power is restored to ensure power resumption is permanent.
2. Push ON button of control and monitor box.
3. Set frequency converter to ON if it is required.
4. Set utility circuit breakers to ON.
5. Set inside light switches to ON.
6. Set technical power circuit breakers to ON.
7. Stabilize environment if necessary (para 2-34).
8. Set console terminal, I/O terminals to ON at their power source. Power ON all other ADP devices except CPU, magnetic tape drives and disk drives.
9. Allow disk drives to purge for at least two minutes. Cycle up each drive being used, one at a time waiting for READY light to come on for each device.
10. Pull CPU away from wall, open CPU door and set PDU to on.
    - If real time clock was turned off, set it to ON
    - If memory save was turned OFF set it to ON.
11. At CPU console set power switch to ON.
12. Power on PDU below tape drive if mag tapes were being used.
13. Power on tape drives and rewind if system application program doesn't have restore capability.
14. Reset any communications errors on KVDTs.
15. Check console terminal screen for message:

    TERMINAL LINE RECONNECTED - POWER FAIL RESUMPTION

16. Make an operational readiness check (para 2-50).
17. Resume operation.

2-72. PREPARATION FOR MOVEMENT

If tactical conditions do not require rapid deployment, a minimum crew of three can prepare DAS3 (D/C) for movement by following the instructions in paragraphs 2-74 thru 2-100 in order. If you are assigned to prepare for movement this way, always get help to do those steps which require two or more persons.

If tactical conditions require rapid deployment, the supervisor must organize and direct the deployment activity using procedures outlined in paragraph 2-73. Use the manloading chart (fig. 2-36) to plan time and manpower requirements for rapid deployment. Note that the master checklist (table 2-15) is divided into phases. All tasks in phase I must be completed before crewmembers can start tasks in phase II and so on through phase IV.

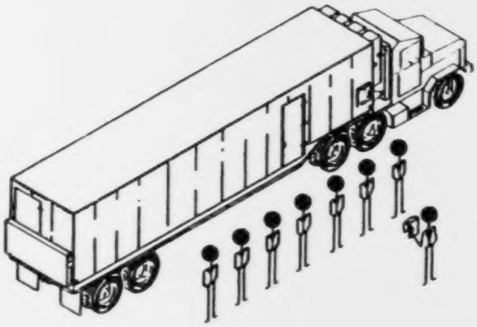
2-73. SUPERVISOR'S PROCEDURE FOR RAPID MOVEMENT

INITIAL SETUP

Materials/Spart Parts	Personnel
• Pencils	• Six (6 operators)

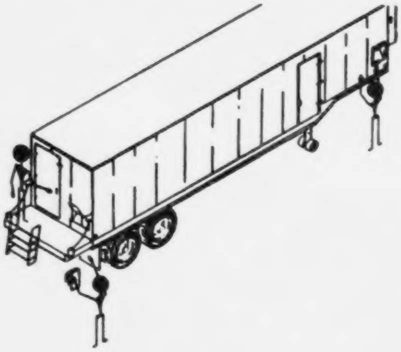
NOTE

This procedure details supervision responsibilities for DAS3 (D/C) preparation for movement. It is used by the supervisor to assure an orderly and efficient movement within a two hour period.



1. Brief the crew selected on the nature of this assignment:
   - Explain the use of crew task assignment lists and task procedures
   - Explain the phases of preparation for movement (table 2-15)
   - Review CAUTIONS and WARNINGS
   - Explain the two-hour time requirement and the need for teamwork
2. Make task list assignments (table 2-16).

2-73. SUPERVISORS PROCEDURE FOR RAPID MOVEMENT (CONT)



3. Tell crew members to begin their task assignments.

4. Monitor preparation activity.

   - Make sure each crew member is doing each task in the order given on his/her task assignment list using instructions in the manual

   - Check off completed tasks on your master checklist (table 2-15)

   - If any crew member is falling behind, ask an available crew member to help out

5. Continue this way until all tasks are complete.

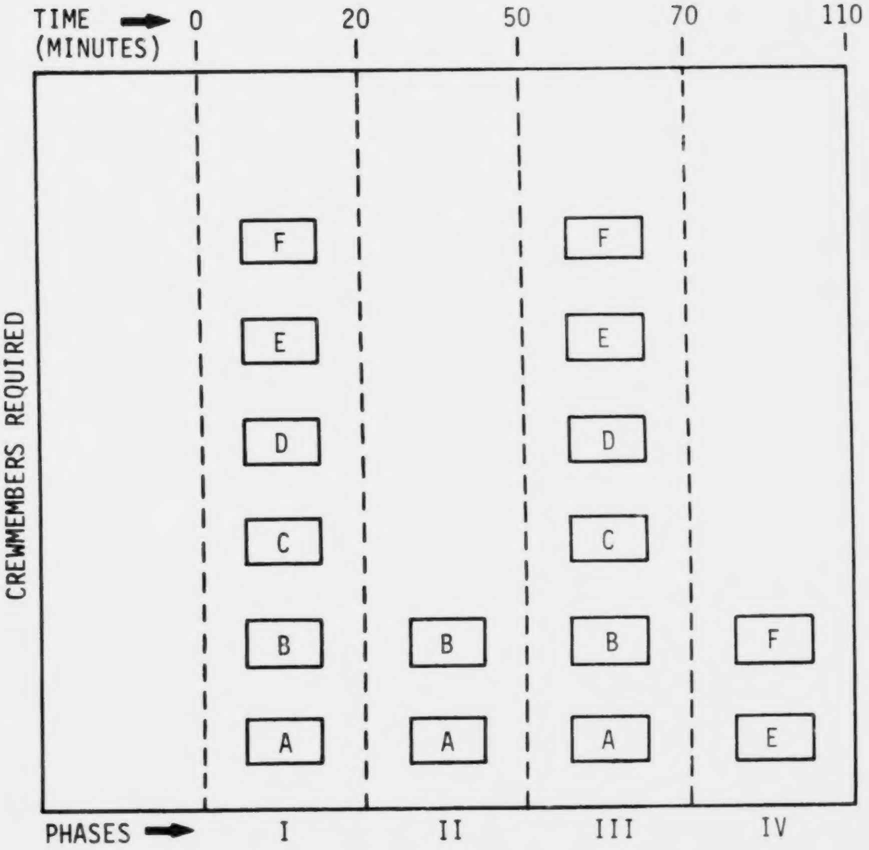


Figure 2-36. Rapid Preparation for Movement Manloading Chart

Table 2-15. Master Checklist For Rapid Movement

Crew Assign	Task Title	Para	Time Allowed	Task Completed (✓)
	PHASE I			
A1, B1	Prepare disk drives for movement	2-78	15 min	( )
A2	Prepare console printer for movement	2-76	10 min	( )
A3	Prepare CPU for movement	2-74	10 min	( )
A4	Prepare tape drives for movement	2-75	10 min	( )
B2	Prepare environmental control equipment for movement	2-81	20 min	( )
C1, D1	Prepare card reader/punch for movement	2-80	30 min	( )
C2, D2	Prepare line printer for movement	2-77	25 min	( )
E1, F1	Tie down operator chairs, prepare emergency light for movement; secure tapes and disks	2-82, 2-83, 2-84	30 min	( )
	PHASE II			
B3	Turn off tech and utility power; turn off system power	2-85, 2-86, 2-87	10 min	( )
A5, B4	Disconnect van adapter cables from generator switch box	2-90	20 min	( )
A6, B5	Disconnect and stow van power cables	2-92	20 min	( )
A7, B6	Stow tools, secure storage cabinets	2-84	10 min	( )
	PHASE III			
A8, B7	Stow ladder handrails, raise rear platform; stow boarding ladders	2-98	20 min	( )
C3, D3	Raise and stow van ground rods	2-93	20 min	( )
C4, D4	Remove signal lines from entrance panels	2-88	20 min	( )
C5, D5	Raise leveling jacks	2-99	10 min	( )

Table 2-15. Master Checklist For Rapid Movement Preparation -- Continued

Crew Assign	Task Title	Para	Time Allowed	Task Completed (✓)
E2, F2	Install air condition drain plugs; lower air conditioner flaps; stow folding ladder	2-94, 2-95, 2-96	20 min	( )
C6, D6	Hitch van to towing vehicle; raise landing gear	2-100	15 min	( )
	PHASE IV			
E3, F3	Shut down power plant; disconnect and stow power plant cables	2-89, 2-91	30 min	( )
E4, F4	Raise and stow power plant ground rods; prepare power plant for movement	2-97	40 min	( )

Table 2-16. Crew Task Assignment List

Task Sequence	Task Title	Para	Time Allowed
CREW MEMBER A			CREW MEMBER A
1	Prepare disk drives for movement	2-78	15 min
2	Prepare console printer for movement	2-76	10 min
3	Prepare CPU for movement	2-74	10 min
4	Prepare tape drives for movement	2-75	10 min
5	Disconnect van adapter cables from generator switch box	2-90	20 min
6	Disconnect and stow van power cables	2-92	20 min
7	Stow tools; secure storage cabinets	2-84	10 min
8	Raise rear platform; stow boarding ladders and handrail	2-98	20 min

Table 2-16. Crew Task Assignment List -- Continued

Task Sequence	Task Title	Para	Time Allowed
CREW MEMBER B			CREW MEMBER B
1	Prepare disk drives for movement	2-78	15 min
2	Prepare environmental control equipment for movement	2-81	20 min
3	Turn off tech and utility power; turn off system power	2-85, 2-86, 2-87	10 min
4	Disconnect van adapter cables from generator switch box	2-90	20 min
5	Disconnect and stow van power cables	2-92	20 min
6	Stow tools; secure storage cabinets	2-84	10 min
7	Raise rear platforms; stow boarding ladders and handrail	2-98	20 min
CREW MEMBER C			CREW MEMBER C
1	Prepare card reader/punch for movement	2-80	30 min
2	Prepare line printer for movement	2-77	25 min
3	Raise and stow van ground rods	2-93	20 min
4	Remove signal lines from entrance panels	2-88	20 min
5	Raise leveling jacks	2-99	10 min
6	Hitch van to towing vehicle; raise landing gear	2-100	15 min

Table 2-16. Crew Task Assignment List -- Continued

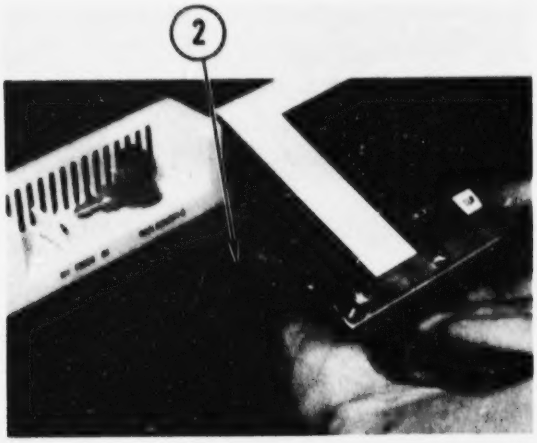
Task Sequence	Task Title	Para	Time Allowed
CREW MEMBER D			CREW MEMBER D
1	Prepare card reader/punch for movement	2-80	30 min
2	Prepare line printer for movement	2-77	25 min
3	Raise and stow van ground rods	2-93	20 min
4	Remove signal lines from entrance panels	2-88	20 min
5	Raise leveling jacks	2-99	10 min
6	Hitch van to towing vehicle; raise landing gear	2-100	15 min
CREW MEMBER E			CREW MEMBER E
1	Prepare operator chairs for movement; prepare emergency light for movement; stow tools/secure storage areas	2-82, 2-83, 2-84	30 min
2	Install air conditioner drain plugs; lower air conditioners flaps; stow folding ladder	2-94, 2-95, 2-96	20 min
3	Shut down power plant. Disconnect and stow power plant cables	2-89, 2-91	30 min
4	Raise and stow power plant ground rods; prepare power plant for movement	2-97	40 min
CREW MEMBER F			CREW MEMBER F
1	Prepare operator chairs for movement; prepare emergency light for movement, stow tools/secure cabinets.	2-82, 2-83, 2-84	30 min
2	Install air conditioner drain plugs; lower air conditioner flaps; stow folding ladder	2-94, 2-95, 2-96	20 min
3	Shut down power plant. Disconnect and stow power plant cables	2-89, 2-91	30 min
4	Raise and stow power plant ground rods; prepare power plant for movement	2-97	40 min

2-74. PREPARE CPU FOR MOVEMENT

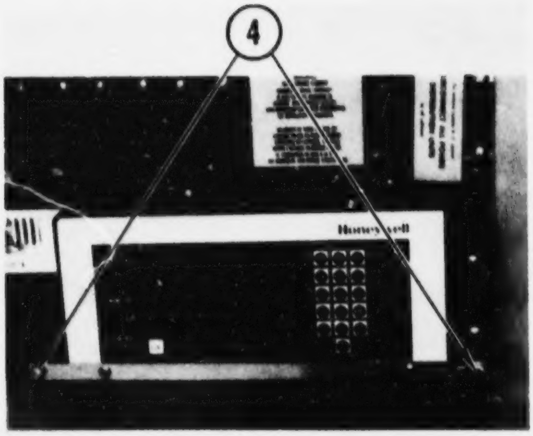
INITIAL SETUP

Common Tools
- Tool kit
- TORX offset driver

Materials/Spare Parts
- Dampening strips

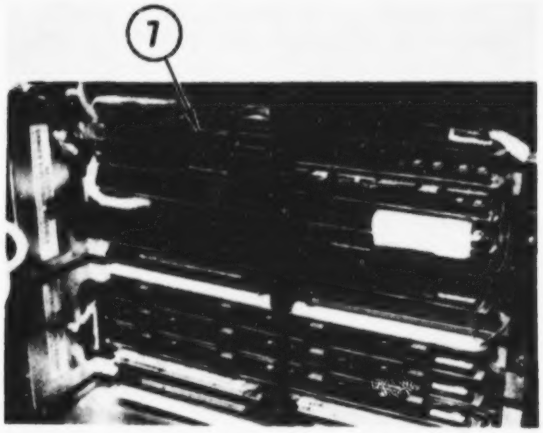


1. Pull out and power OFF CPU.
2. On control panel, free locking pins.
3. Lower control panel.

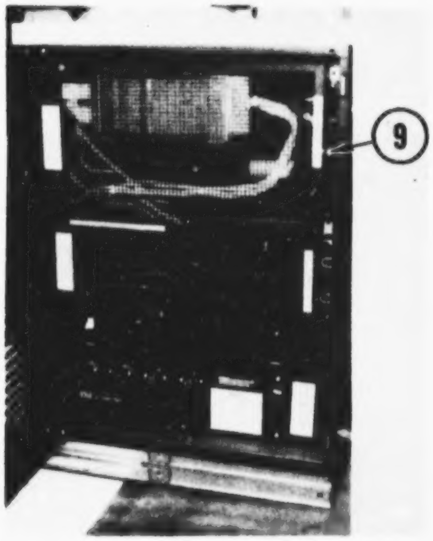


4. Screw down control panel.
5. Open front door of CPU.
6. Loosen captive screw and open top grill.

2-74. PREPARE CPU FOR MOVEMENT (CONT)

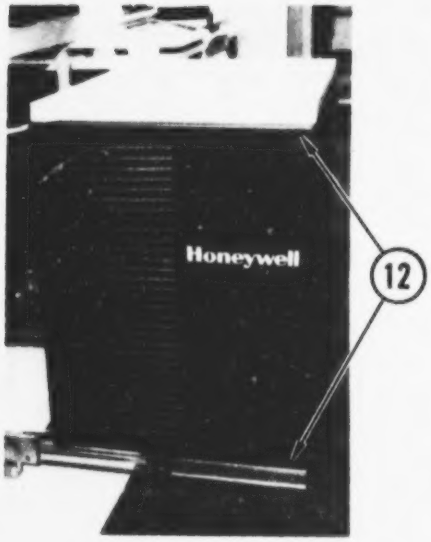


7. Locate RTC pac switch on left side of MDC board.
8. Place switch in OFF position.



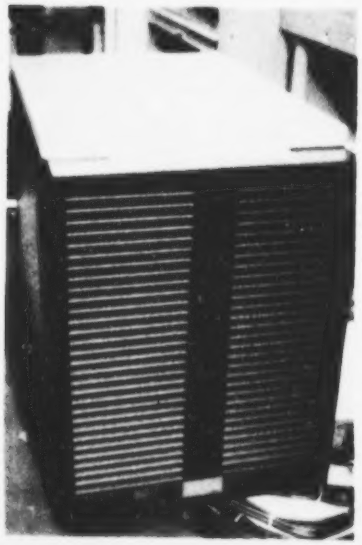
9. Close grill and tighten captive screw.
10. Check memory save and power is off.

2-74. PREPARE CPU FOR MOVEMENT (CONT)



11. Close front door.

12. Insert and tighten screws.

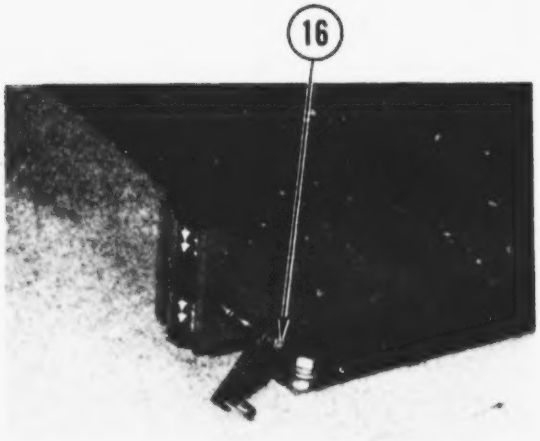


13. Make sure rear door is screwed shut.
    - If not, insert and tighten screws

14. Slide in CPU.

2-74. PREPARE CPU FOR MOVEMENT (CONT)

15. Get two locking pins from tie down parts storage bag.



16. While pushing button, insert one pin in rail of CPU.

17. While pushing button, insert one pin in other rail of CPU.

2-75. PREPARE TAPE DRIVES FOR MOVEMENT

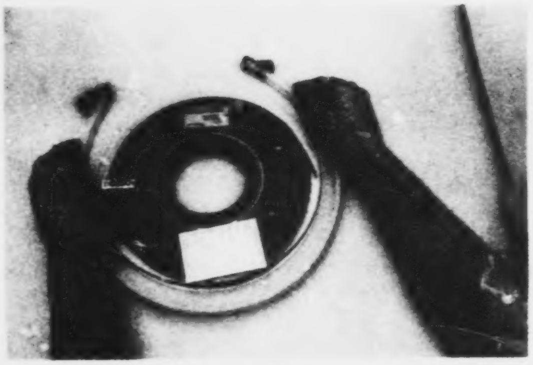
INITIAL SETUP

Common Tools
- Tool kit

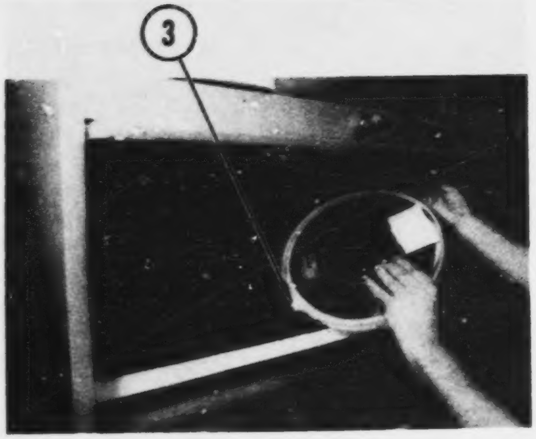
Materials/Spare Parts
- Strapping tape
- Tie-down parts from storage

NOTE

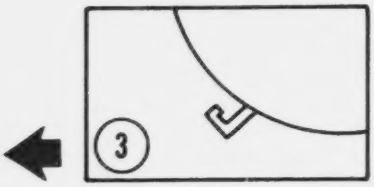
There are two tape drives. Follow these steps to secure either.



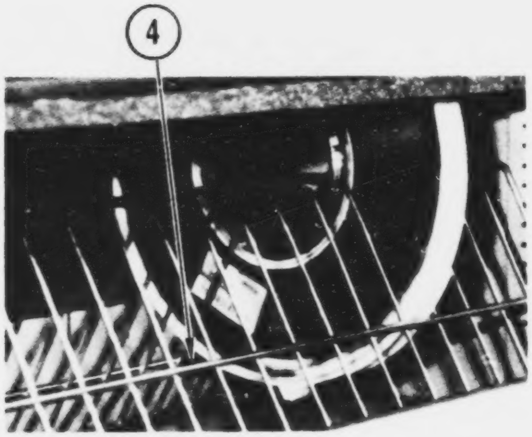
1. If tape is loaded, unload tape. Then set ON/OFF switch to off.
2. Install tape wrapper on tape, as shown.



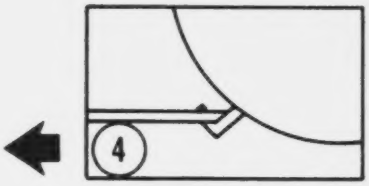
3. Go to tape storage cabinet. Hold tape so hook faces rear of cabinet. Slide tape into rack.



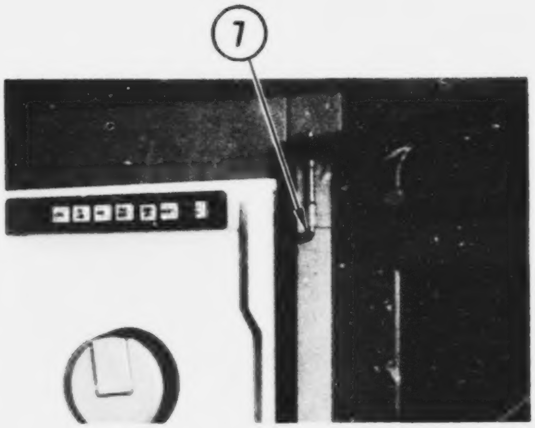
2-75. PREPARE TAPE DRIVES FOR MOVEMENT (CONT)



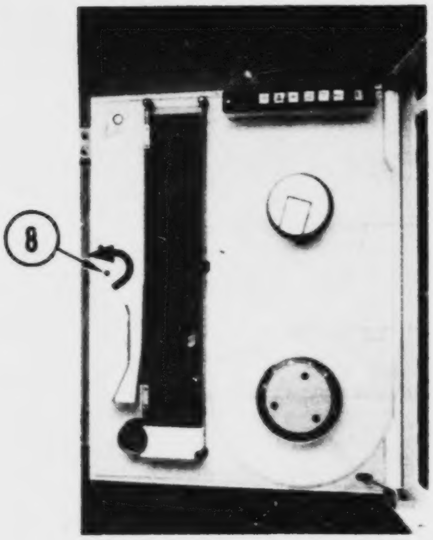
4. Turn tape as shown until hook catches rear rack bar.



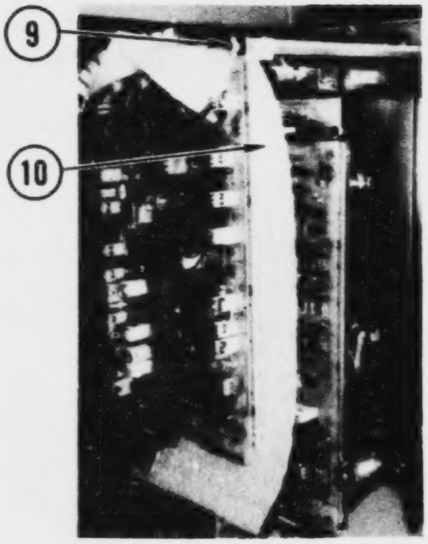
5. Go to tape drive.
6. Open latch and swing open front cover.
7. Hold cover at bottom while pulling down on spring-loaded pin at top of inside cover. Pull out to remove cover.



2-75. PREPARE TAPE DRIVES FOR MOVEMENT (CONT)



8. Insert flat-tip screwdriver in latch hole. Turn two or three times as shown. Pull open cabinet.



9. Open top latch. Turn thumbscrew to left.

10. Insert foam backed paper between boards. Drape about 2 inches over top of board.

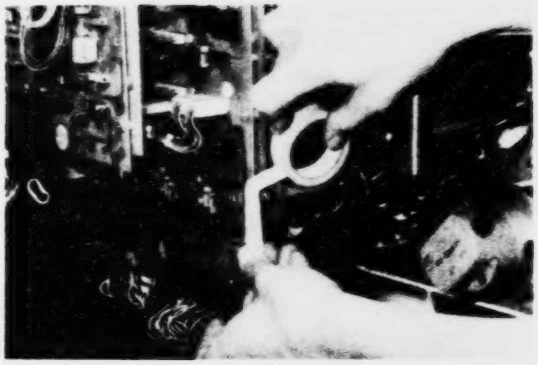
2-75. PREPARE TAPE DRIVES FOR MOVEMENT (CONT)

11. Close latch. Turn thumb screws to right to tighten.

NOTE

Latches can vibrate loose during travel. To avoid this, latches must be taped so they cannot twist loose.

12. Tape both latches to support bars as shown.



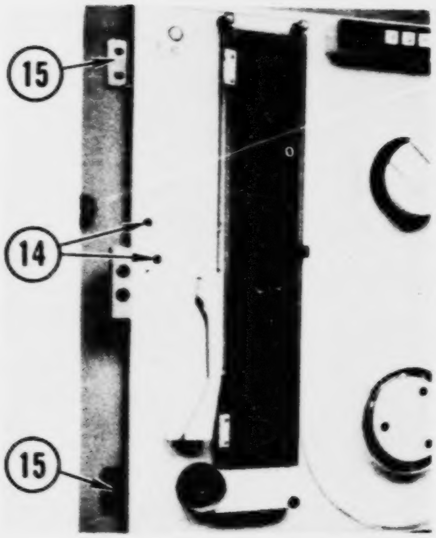
13. Close cabinet.

14. Use slot screwdriver to tighten latch.

15. Push four screws in braces. Hand tighten each screw.

16. When you've started all four screws, tighten each one with screwdriver.

17. Install and close cover. Make sure cover latch is locked.



2-76. PREPARE CONSOLE PRINTER FOR MOVEMENT

INITIAL SETUP	
Common Tools	Materials/Spare Parts
• Tool kit	• Marking pen • Tie wrap • Strapping tape

1. Power OFF printer.

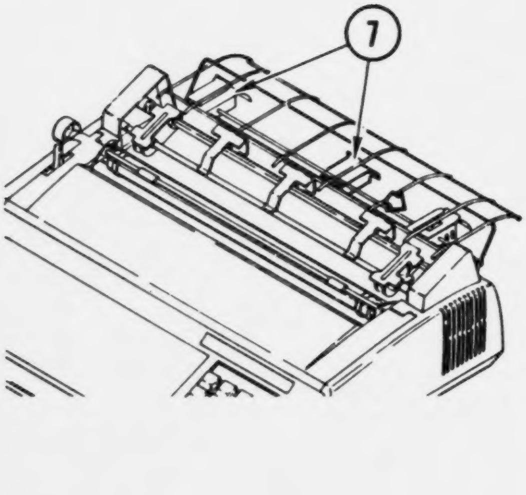
2. Remove paper.

3. Place paper inside business form box.

4. Tape box shut.

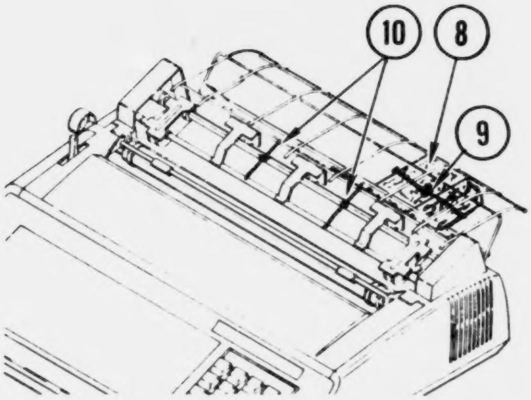
5. Using a marking pen, write "CONSOLE" on top of box.

6. Stow box in bulk storage cabinet.



7. Move left and center paper guides to the right next to right paper guide.

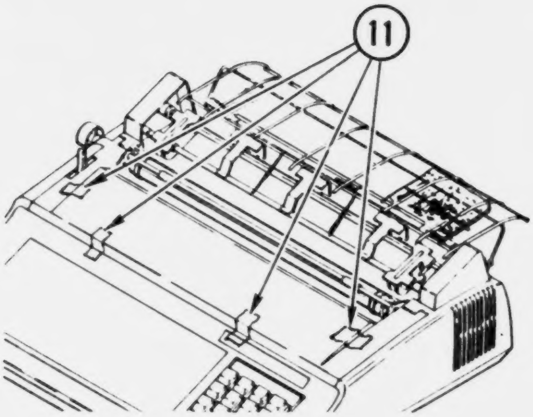
2-76. PREPARE CONSOLE PRINTER FOR MOVEMENT (CONT)



8. Insert foam ribbon/styrofoam square over the paper guides and under the paper rack.

9. Using 12-inch tie wrap, secure foam/styrofoam block to paper rack.

10. Using two 5-inch tie wraps, secure paper rack to paper drive bar directly in front of paper rack.



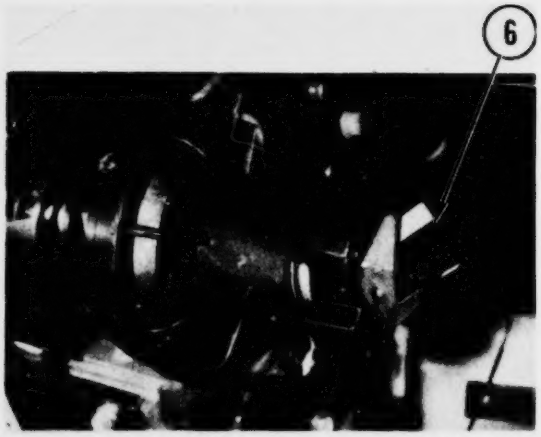
11. Using 2-inch square of strapping tape, secure access cover to base of console printer, then repeat process and secure paper cutter.

2-77. PREPARE LINE PRINTER FOR MOVEMENT

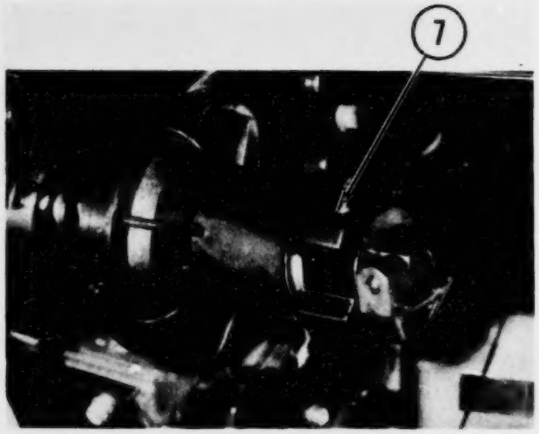
INITIAL SETUP

Common Tools	Materials/Spare Parts
• Decimal socket set	• Line printer transport parts • Parts storage bag • Tie wraps • Shipping tape

1. Power OFF.
2. Open front doors.
3. Cutoff, remove, and store unused paper.
4. Close front doors.
5. Raise operator door.

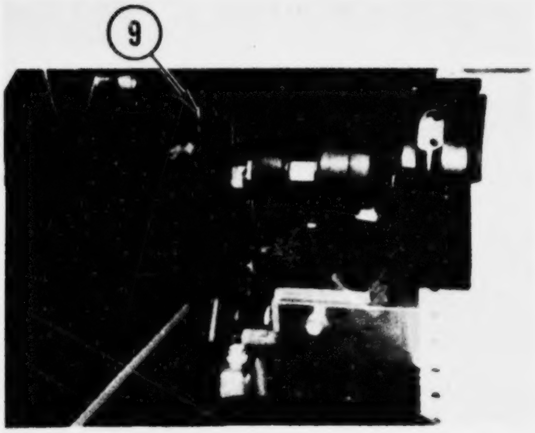


6. Disengage paper feed at release lever.

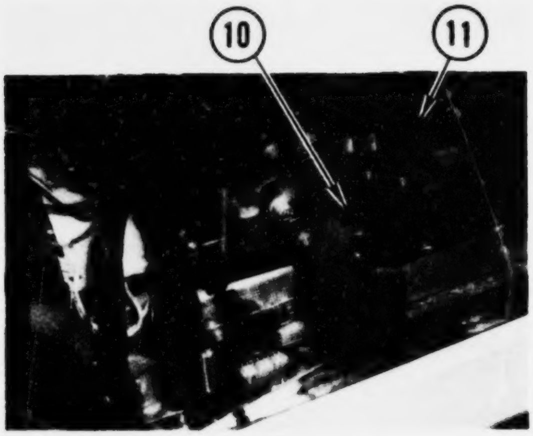


7. Turn vertical adjust knob to move end of paper into rear compartment.
8. Engage paper feed at release lever (Red mark to inside position).

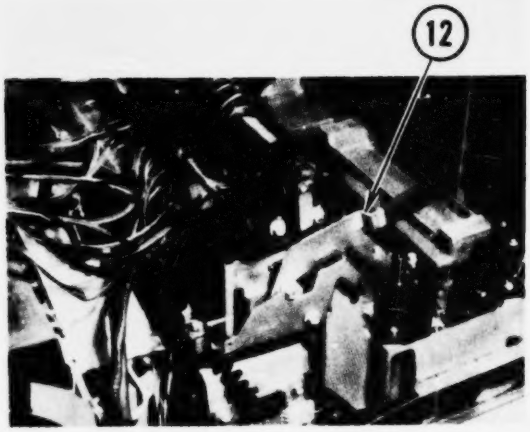
2-77. PREPARE LINE PRINTER FOR MOVEMENT (CONT)



9. Inside operator door, lift hammer bank latch handle.

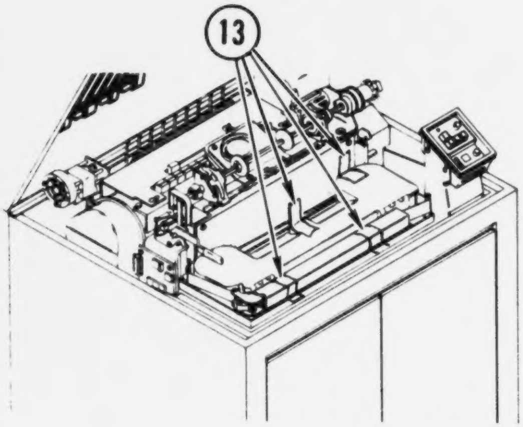


10. Secure hammer bank assembly with tie strap around inner portion of latch pin.
11. Lower hammer bank latch handle.

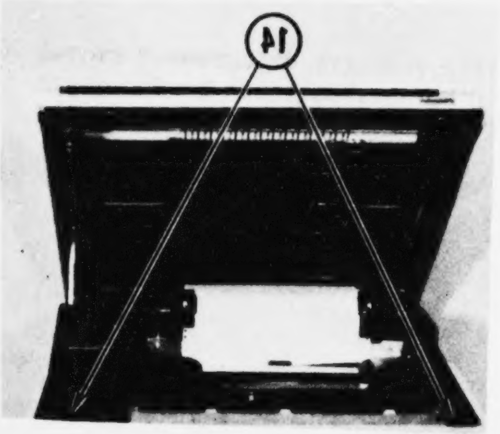


12. Tie hammer bank latch assembly in place.

2-77. PREPARE LINE PRINTER FOR MOVEMENT (CONT)



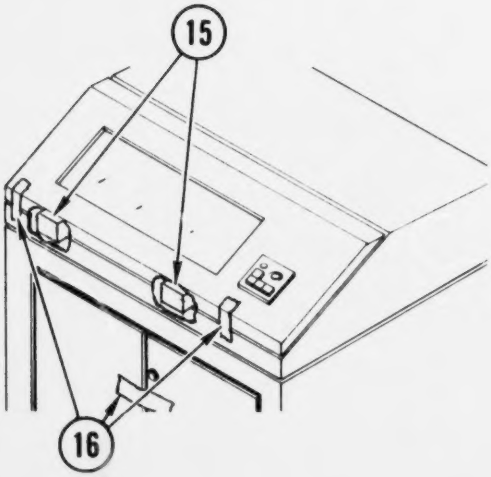
13. Strap ribbon cartridge to inside supports on both sides using strapping tape.



14. Tighten captive screws. There is one on each end inside the cover.

CAUTION

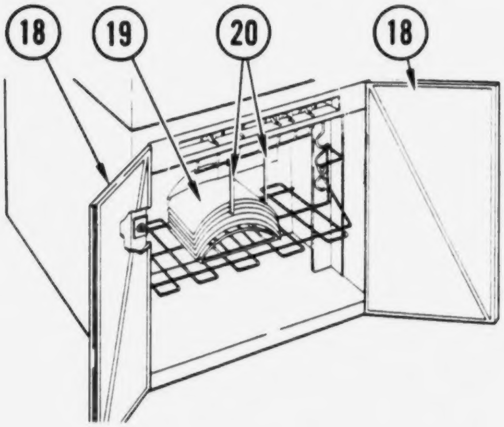
Do not overtighten. They are seated in nylon anchors.



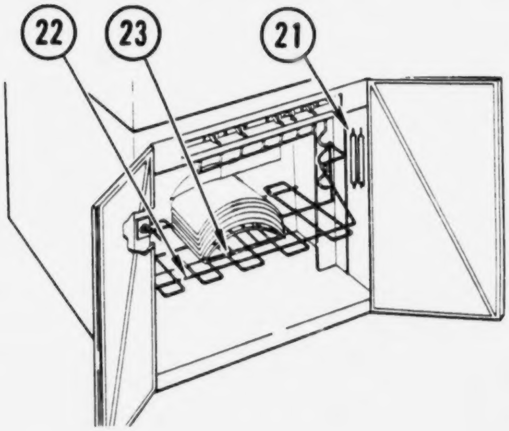
15. Install cardboard inserts.

16. Close and secure operator door of line printer to cabinet with strapping tape. Tape lower door shut.

2-77. PREPARE LINE PRINTER FOR MOVEMENT (CONT)



17. Slide printer away from wall.
18. Open rear doors.
19. Remove used paper.
20. Lift plastic paper guides from printer paper exit chute.



21. Tape plastic strips to inside wall of printer cabinet.
22. Move paper shelf to lowest position.
23. Tape stacker rack to shelf to prevent movement.
24. Secure arched base to paper shelf with tie wraps.
25. Close rear doors and tape shut.
26. Push line printer against wall.
27. Install locking pins in tracks.
28. Bolt line printer brackets to wall hardware.

2-78. PREPARE DISK DRIVES FOR MOVEMENT

INITIAL SETUP

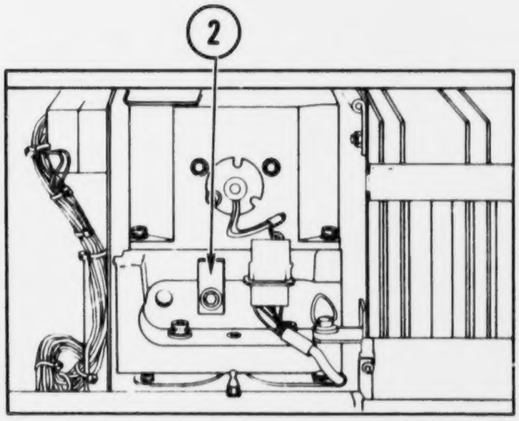
Common Tools	Materials/Spare Parts
• Tool kit	• Tags
• Hex key allen set-decimal	• Pen or pencil

NOTE

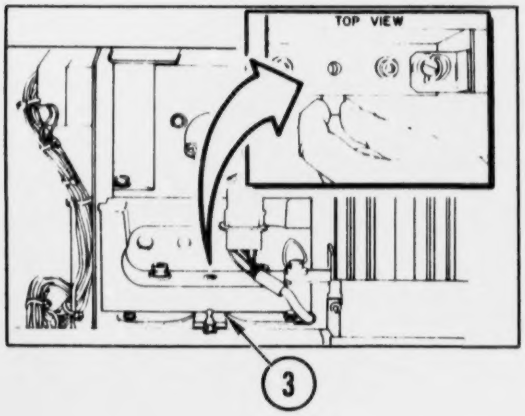
There are six disk drives. Use this procedure to prepare each one for movement.

1. Power OFF drive. Raise cover (para 2-40, steps 4-7).

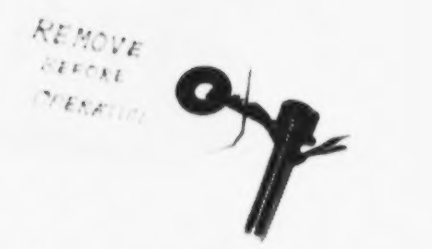
2. From rear of drive, locate bolt and spacer. Using 3/16-inch hex key wrench, remove bolt. Pull off spacer.



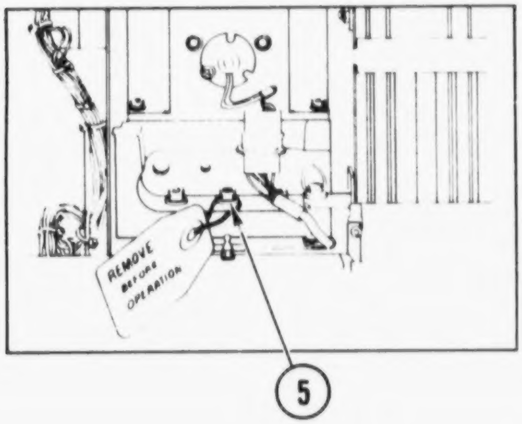
3. Slide spacer under deck as shown. Make sure you line up holes.



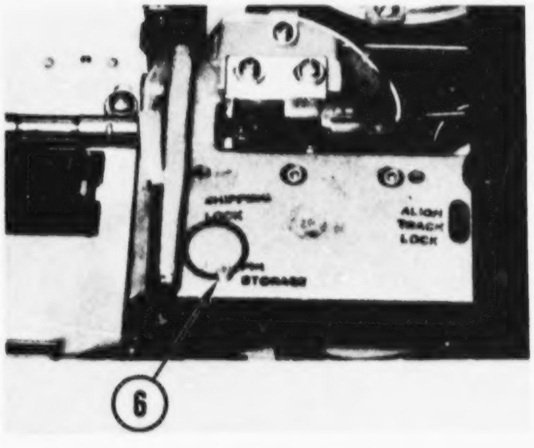
2-78. PREPARE DISK DRIVES FOR MOVEMENT (CONT)


REMOVE
BEFORE
OPERATION

4. Tag bolt as shown.

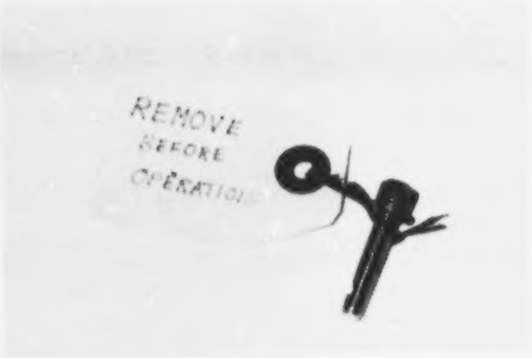

REMOVE
BEFORE
OPERATION
5

5. Push bolt through spacer. Tighten bolt.

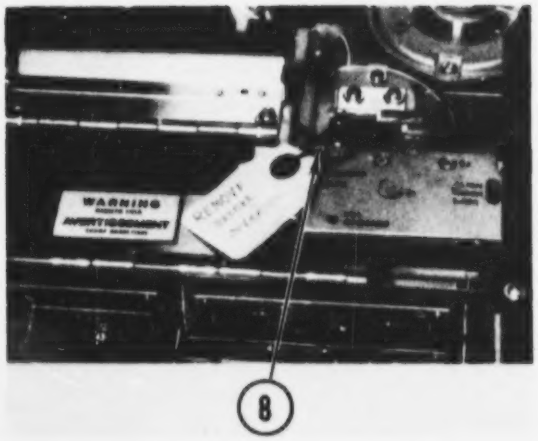

SHIPPING
LOCK
STORAGE
ALIGN
TRACK
LOCK
6

On top of drive, pull pin out of storage hole.

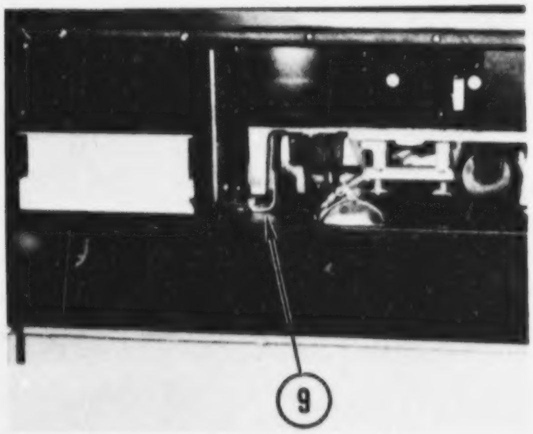
2-78. PREPARE DISK DRIVES FOR MOVEMENT (CONT)


REMOVE
BEFORE
OPERATION

7. Tag pin as shown.

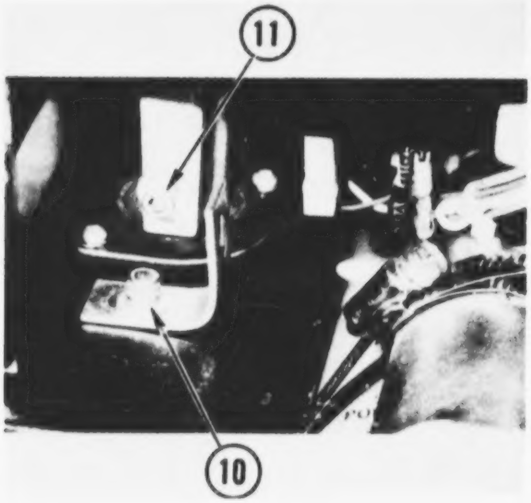

WARNING
AVERTISSEMENT
REMOVE
BEFORE
OPER
8

8. Push pin in shipping hole.

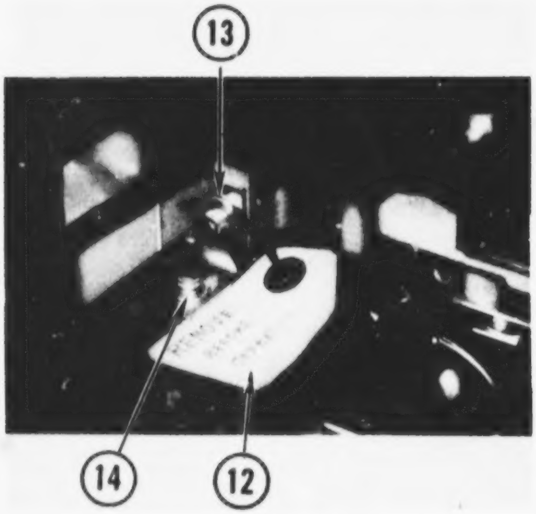


9. On right side of drive, find bracket.

2-78. PREPARE DISK DRIVES FOR MOVEMENT (CONT)



10. Using 5/32-inch hex key wrench, loosen bolt enough to move bracket.
11. Using 5/32-inch hex key wrench, remove bolt.

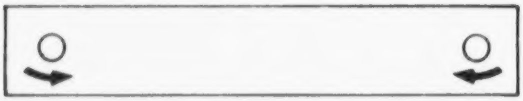


12. Tag bolt as shown.
13. Slide bracket into position shown.
14. Replace tagged bolt and tighten.
15. Lower cover. Set both circuit breakers to OFF.

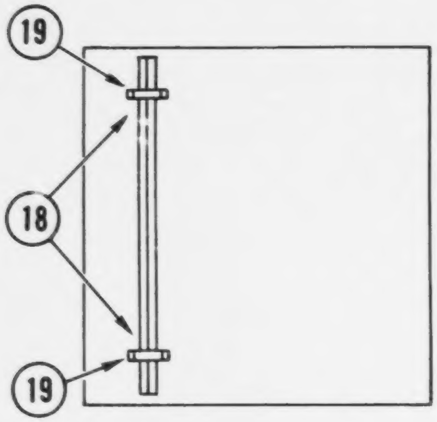
CAUTION

Check drawer after tightening knobs to make sure drawer cannot move.

16. Tighten knobs.
17. At bottom corners of each disk drive drawer, turn locking knobs as shown.

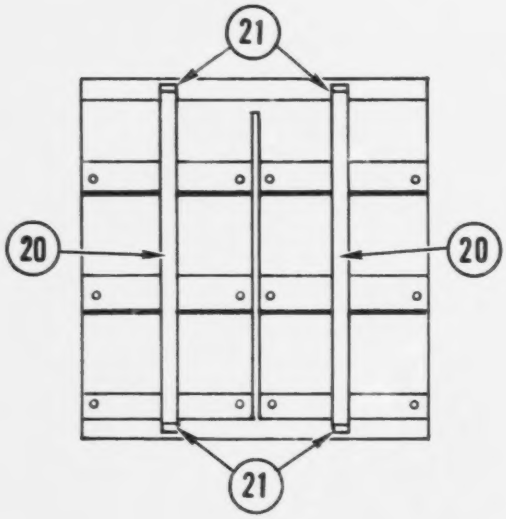


2-78. PREPARE DISK DRIVES FOR MOVEMENT (CONT)



18. Open brackets on right side of cabinet and remove shipping bars.

19. Fasten brackets.



20. Place shipping bars in front of disk drive cabinet.

21. Fasten bars in place with screws and washers.

2-79. PREPARE COMMUNICATIONS SUBSYSTEM FOR MOVEMENT

Leave circuit breakers for crypto cabinet, cabinet A, and cabinet B in ON position. Do not unscrew front panel. Power will go off when utility power switch is switched off.

NOTE

> Communications subsystem modules, A and B cabinets, require only that individual doors be shut and latched. No other preparations for movement are necessary.

2-80. PREPARE CARD READER/PUNCH FOR MOVEMENT

INITIAL SETUP

Common Tools	Materials/Spare Parts
- Tool kit	- Card reader/punch transport parts - Parts storage bag - Tie wraps

1. Power OFF.

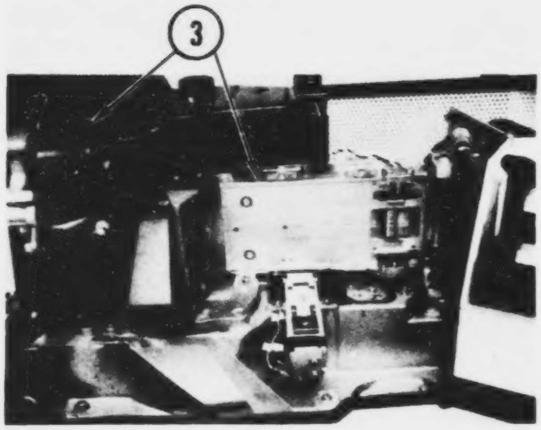
NOTE

Get parts bag from storage. It should contain all parts you need to prepare device for movement.

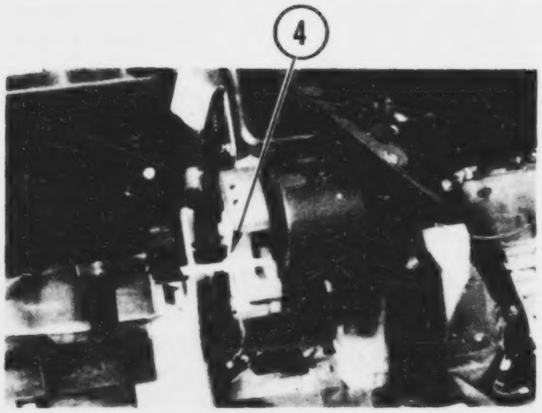
2. Slide device away from wall until it clears overhead tape rack. Lift top cover.

NOTE

Ink cartridge must be twisted shut before removal.

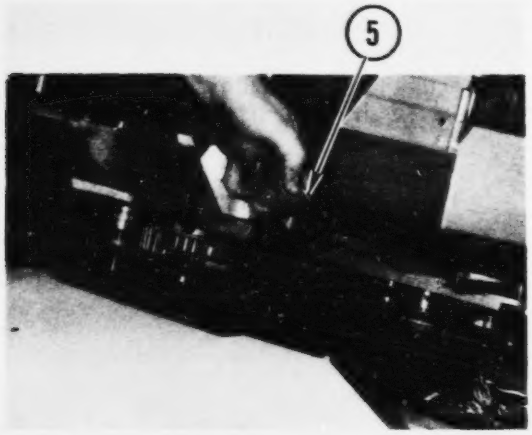


3. Pull off and stow visible wait station window and ink cartridge.

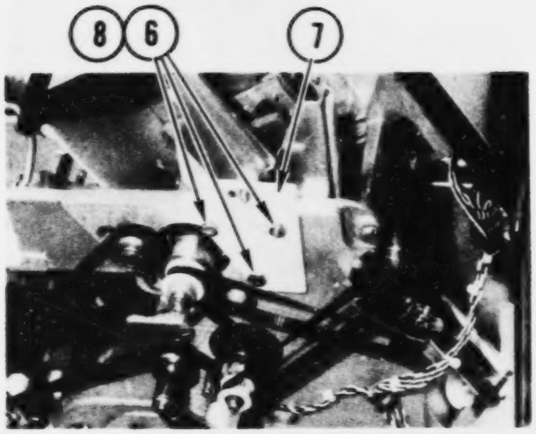


4. Place 5 inch tie wrap around ink cartridge assembly and secure.

2-80. PREPARE CARD READER/PUNCH FOR MOVEMENT (CONT)



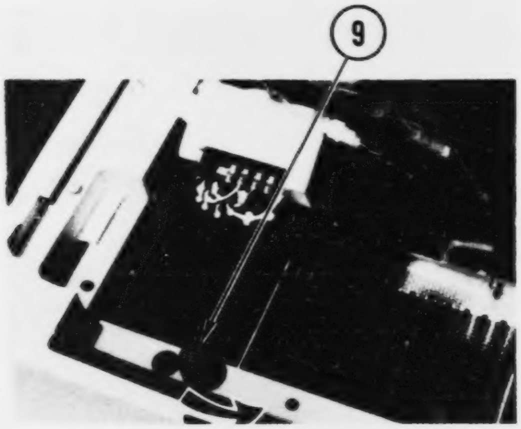
5. Raise deck until it locks into maintenance position.



6. Remove nuts and washers.

7. Put bracket from parts bag in place, as shown.

8. Put nuts and washers in place. Tighten nuts.

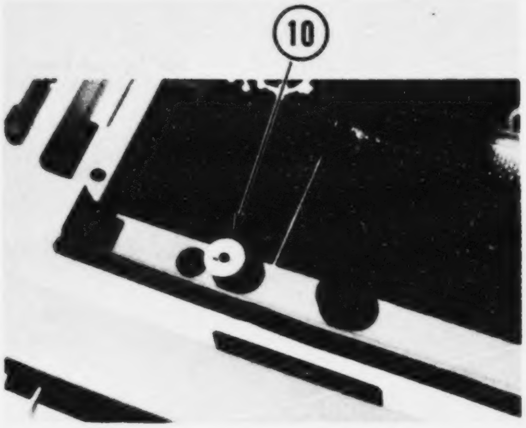


9. Remove rubber spacer and move it to right of spacer hole as shown.

NOTE

Rubber spacer has a small nipple on bottom. Put spacer in place and gently pull on nipple until it locks in place.

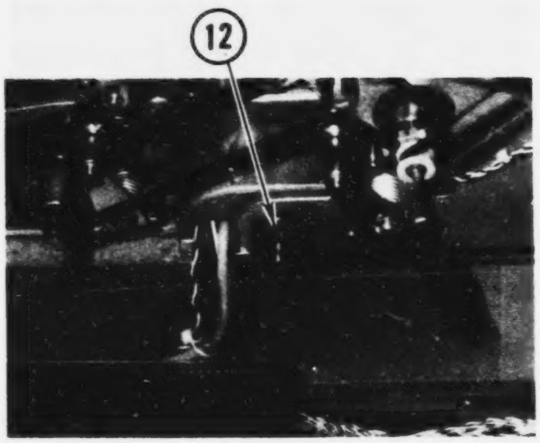
2-80. PREPARE CARD READER/PUNCH FOR MOVEMENT (CONT)



NOTE

Make sure metal spacer hole is aligned with hole drilled in frame.

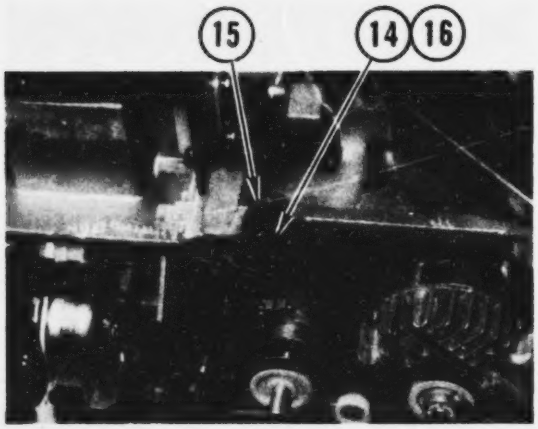
10. Put metal spacer from parts bag in place under stacker, as shown.



NOTE

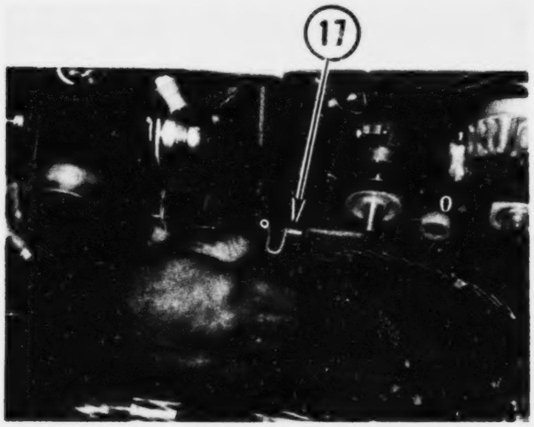
There is a U-clamp on each damper spring. The U faces in for transport.

11. Find two U-clamps. Using socket wrench, remove the nuts from each.
12. Turn over two U-clamps.
13. Replace and tighten nuts. Do not overtighten.

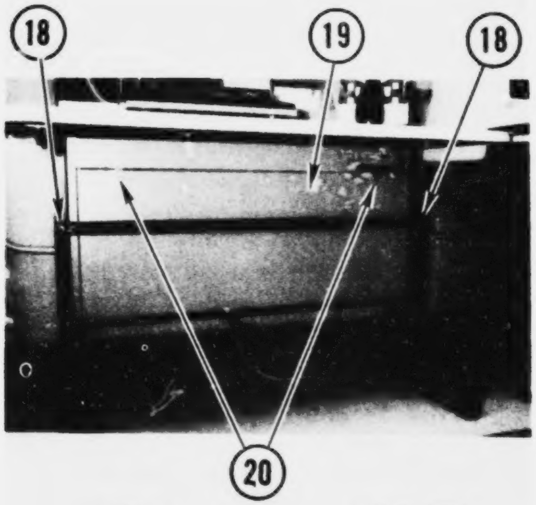


14. Loosen clamp screw.
15. Turn clamp 90°, as shown, and hold.
16. Tighten clamp screw.

2-80. PREPARE CARD READER/PUNCH FOR MOVEMENT (CONT)



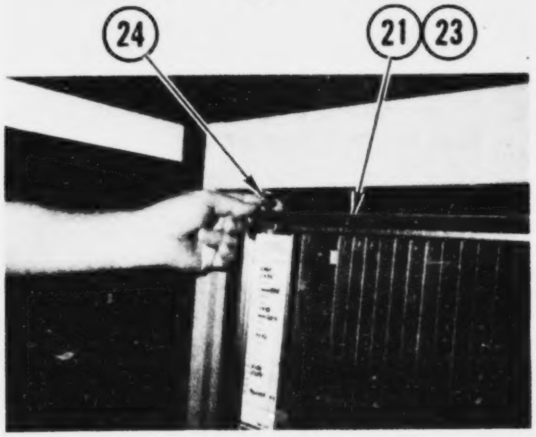
17. Press button on side of clamp and lower deck.



18. Loosen screws. Remove cross bar.

19. Pull out and empty chad box.

20. Turn screws. Pull off front panel.



21. Raise slightly and swing out logic cage.

22. Get 3-1/2-inch tie down bolt, nut and washers from parts storage bags. Insert bolt down through hole in stacker base and metal spacer. Install lockwasher and nut and tighten.

23. Swing logic cage back into place.

24. Tighten black nylon nut, as shown, until you cannot swing out logic cage.

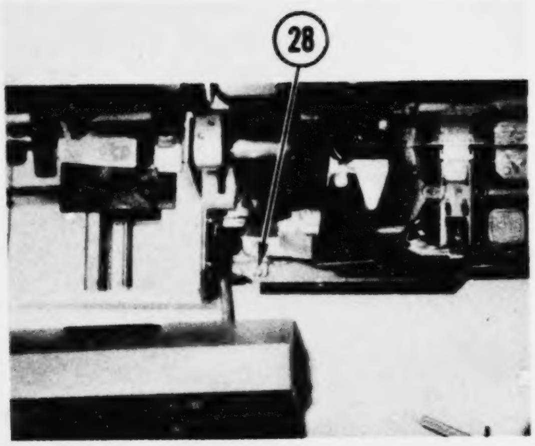
2-80. PREPARE CARD READER/PUNCH FOR MOVEMENT (CONT)

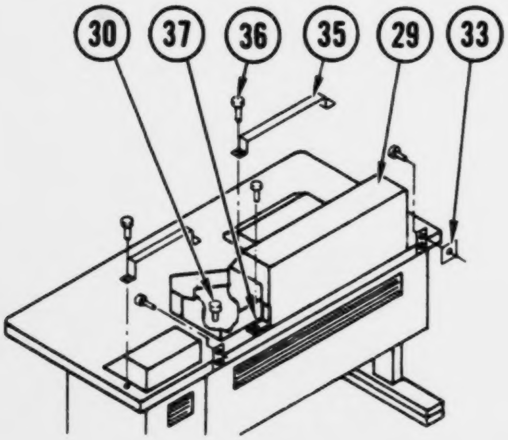
25. Install front panel. Turn screws.

26. Push in chad box.

27. Put front panel bar in place. Tighten two bar screws.

28. Get clamp-screw and washer from parts bag. Install, as shown.





29. Lower top cover.

30. Tighten hopper screw.

31. Get bolts and spacers for wall brackets from tie down parts storage bag.

32. Slide in device.

33. Install wall bracket spacers, washers and bolts. Tighten bolts.

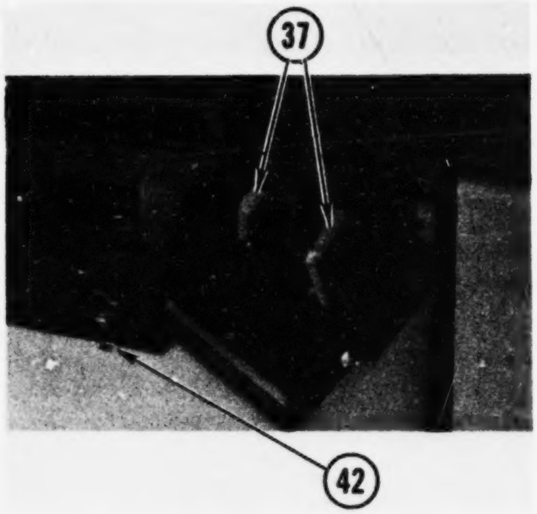
34. Insert locking pins in tracks.

35. If keyboard clamp is not in place, put it in place now.

36. Install and tighten keyboard clamp bolts, washers and nuts.

37. Put screw in L-bracket, as shown. Tighten screw.

2-80. PREPARE CARD READER/PUNCH FOR MOVEMENT (CONT)



38. Place foambacked cards in each hopper. Tape both hopper paddles to input station, as shown.

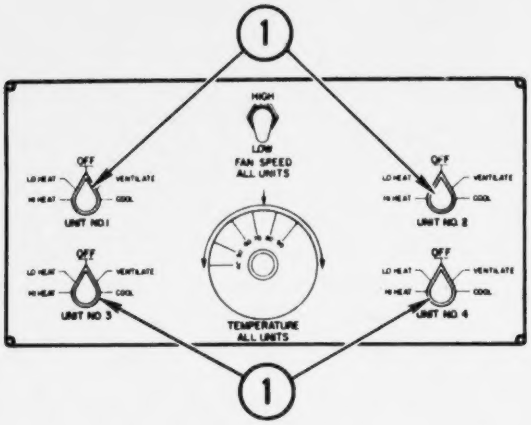
39. Push foam blocks into each stacker channel.

40. If controller clamp is not in place, put it in place now.

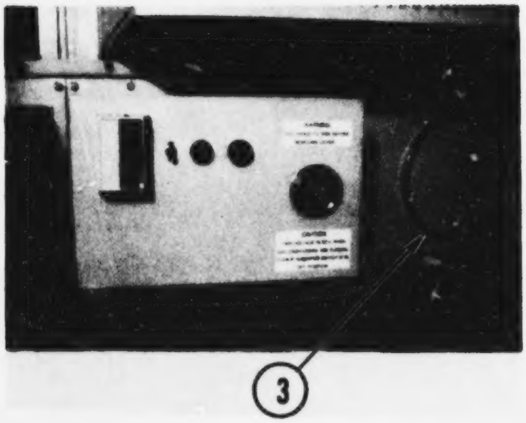
41. Install and tighten controller clamp bolts, washers and nuts.

42. Tape top cover securely to stacker channel frame.

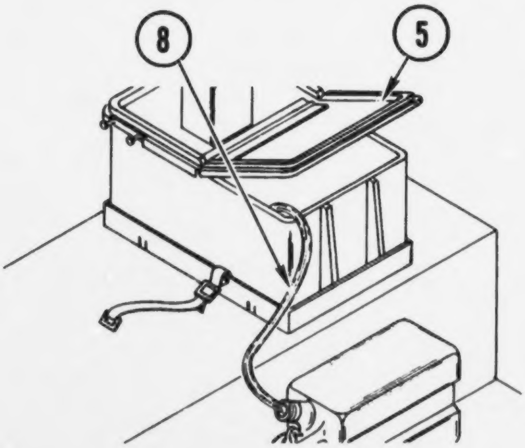
2-81. PREPARE ENVIRONMENTAL CONTROL EQUIPMENT FOR MOVEMENT


1
HIGH
LOW
FAN SPEED
ALL UNITS
OFF
LO HEAT
HI HEAT
VENTILATE
COOL
UNIT NO.1
UNIT NO. 2
UNIT NO 3
UNIT NO. 4
TEMPERATURE
ALL UNITS
1

1. Power off air conditioner units.
2. Unplug humidifier and pump power cord.



3. Locate and remove suction hose from access wall at rear of humidifier tank.



4. Place empty five gallon jerrican on its side on floor as shown.
5. Press down on rear lid of humidifier tank and carefully raise front lid.
6. Completely immerse suction hose in humidifier tank until it is full of water.
7. Using your thumbs, seal water in hose.
8. Put one end of hose into jerrican, the other into bottom of tank releasing your thumbs at same time.
   - If water doesn't drain repeat steps 6, 7 and 8

2-81. PREPARE ENVIRONMENTAL CONTROL EQUIPMENT FOR MOVEMENT (CONT)

NOTE

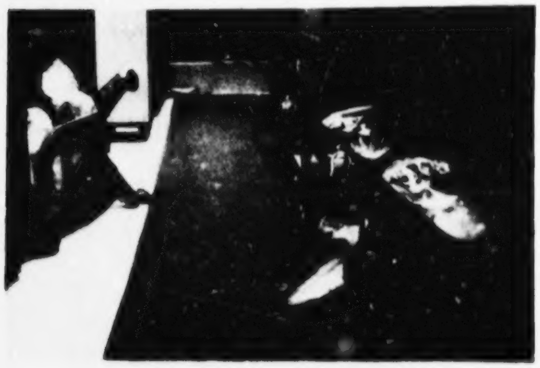
A small amount of water may remain in pump tank. You may disregard it or use a sponge or lint free cloth to mop it out.

9. When tank is empty, close and stow jerrican. Close humidifier tank lid.
10. Replace suction hose on access wall at rear of humidifier tank.

2-82. PREPARE OPERATOR CHAIRS FOR MOVEMENT

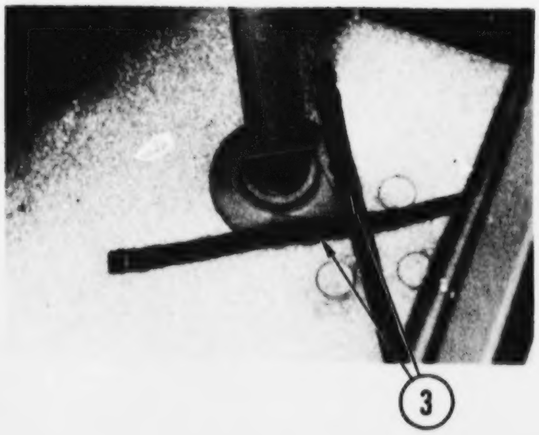
INITIAL SETUP

Materials/Spare Parts
- Tie down straps



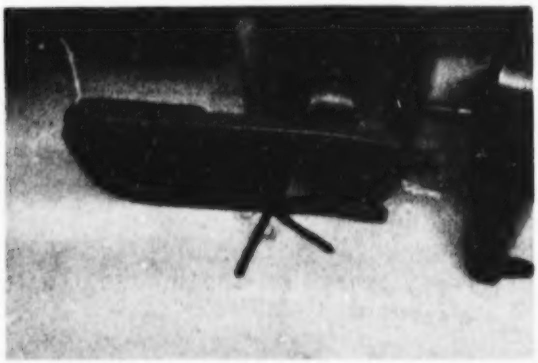
1. Place the three chairs on sides as shown.

2. Follow steps 3 thru 7 to tie down each chair.

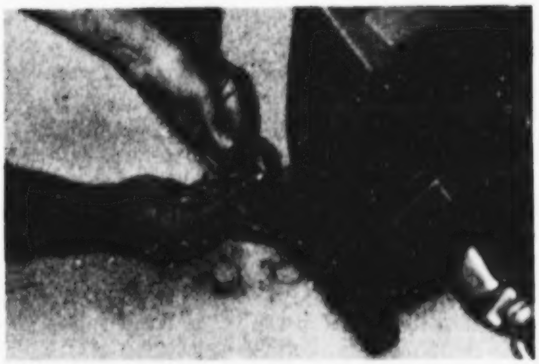


3. Run straps through table leg brackets. Position straps as shown.

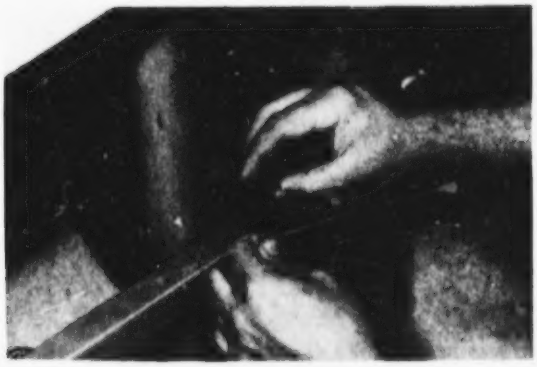
2-82. PREPARE OPERATOR CHAIRS FOR MOVEMENT (CONT)



4. Lay chair on straps as shown.



5. Tie straps around chair side as shown.



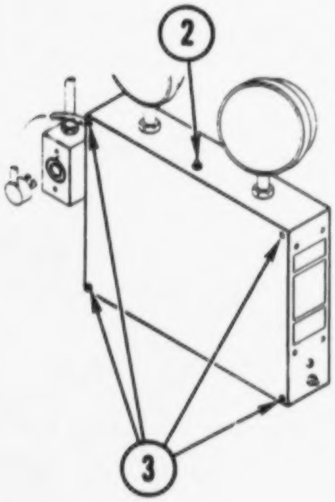
6. Slip strap around top of table leg. Tie strap around other side of chair as shown.

7. Make sure chairs cannot pull loose.

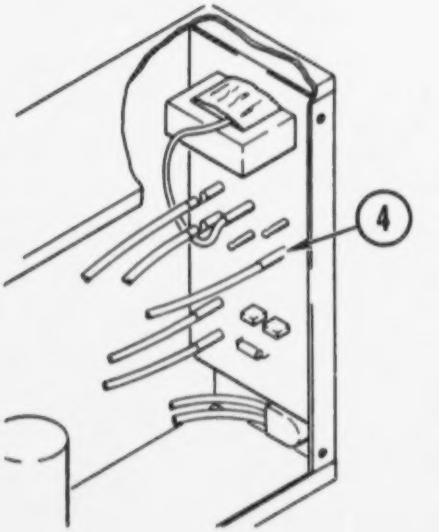
2-83. PREPARE EMERGENCY LIGHT FOR MOVEMENT

INITIAL SETUP

Common Tools	Materials/Spare Parts
• Tool kit	• Tie wraps

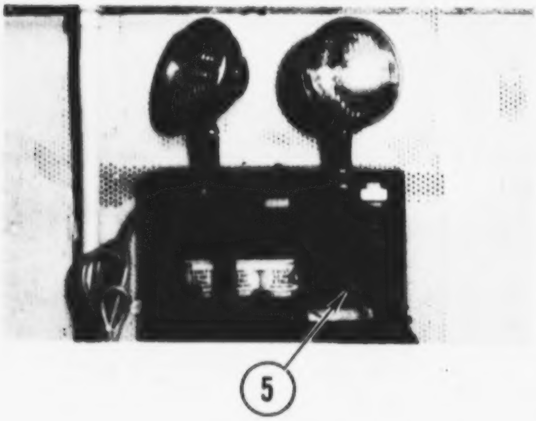


1. Unplug power cord.
2. Press switch on top of case to turn off light.
3. Remove cover plate screws and remove cover plate.

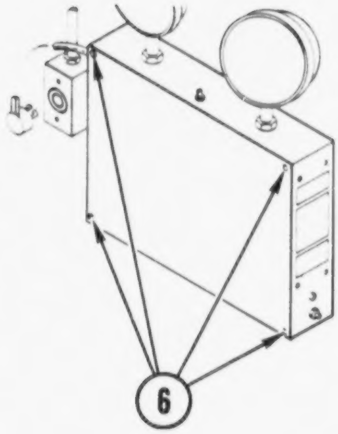


4. Unplug blue wire from printed circuit board.

2-83. PREPARE EMERGENCY LIGHT FOR MOVEMENT (CONT)



5. Disconnect remaining battery pack wire from ON/OFF switch wire.



6. Install cover plate.

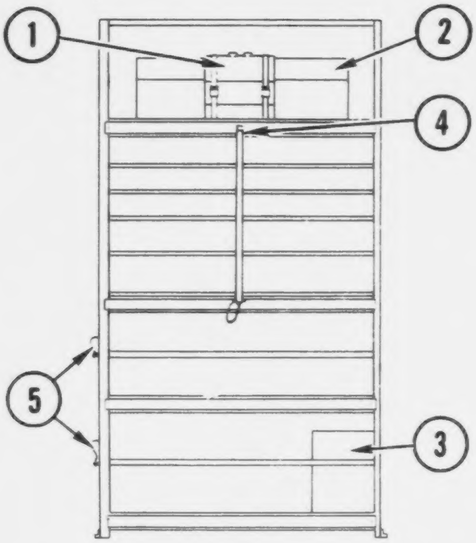
7. Tie down power cord with tie wrap.

2-84. STOW TOOLS/SECURE STORAGE CABINETS

INITIAL SETUP

Materials/Spare Parts

- Packing tape (3-inch piece)



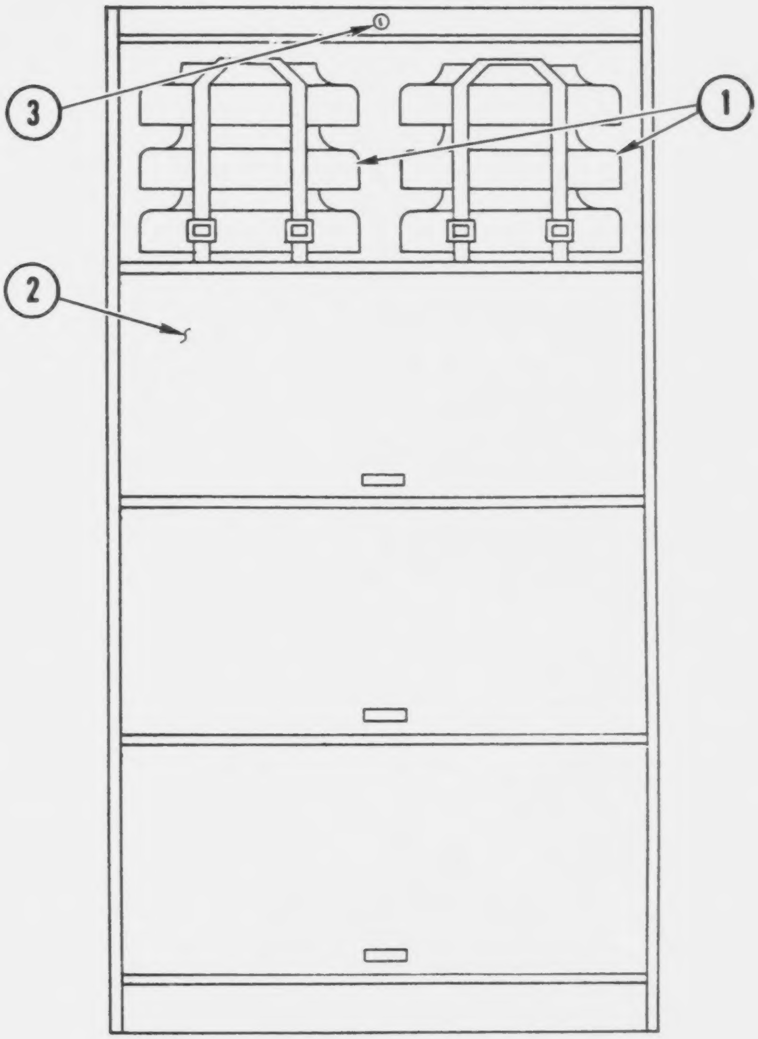
Spare Parts and Tools Storage Rack

NOTE

Make sure all tools, spare parts, printer paper, and punch cards have been returned and stowed in the proper position. Check that lamps are securely fastened in rack.

1. Stack T & V pack (SMUPAC) and MSU alinement pack. Fasten restraining belt around them.
2. Fasten restraining belt around vacuum cleaner.
3. Fasten restraining belt around oscilloscope.
4. Place plain end of retaining bar in upper slot and push up as far as it will go (keep bottom of bar positioned slightly to one side of bottom slot). Move bottom of bar over into position and drop into bottom slot. Insert retaining clip.
5. Install lower shelves retaining bars. Insert retaining clips to fasten.

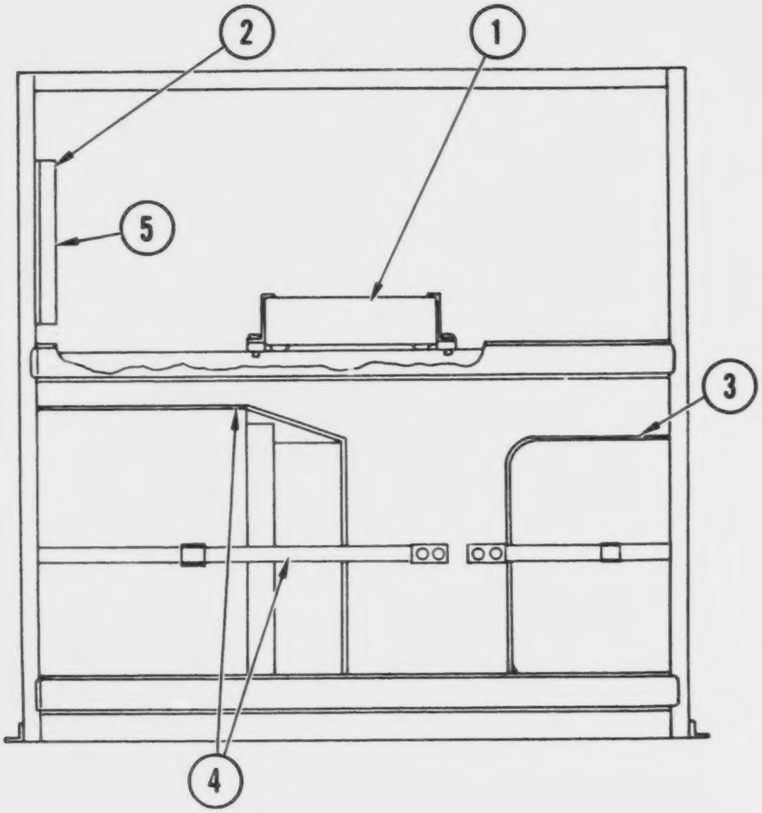
2-84. STOW TOOLS/SECURE STORAGE CABINETS (CONT)



Disk Storage Cabinet

1. Position all disk packs. Move belts into position, buckle, and tighten them.
2. Pull shelf doors down into place.
3. Lock cabinet at top.

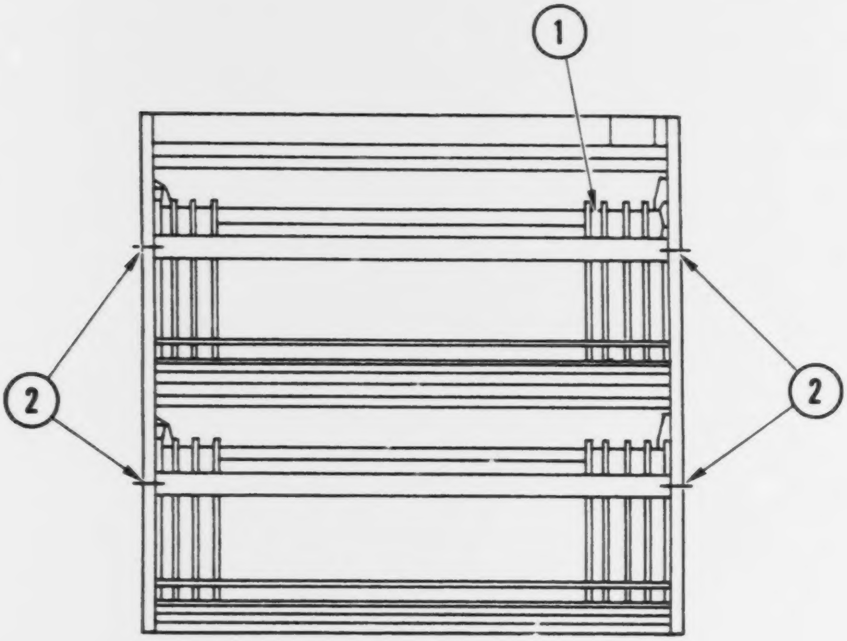
2-84. STOW TOOLS/SECURE STORAGE CABINETS (CONT)



Bulk Storage Cabinet

1. Ensure 103J modem is securely bolted to cabinet.
2. Position tracking and skew tapes. Install retaining ring, fastener and holding bar. Turn fastener 1/4 turn to the right to secure.
3. Fasten restraining belt around FTU.
4. Fasten restraining belts around air filter and tool kit.
5. Install retaining clip.

2-84. STOW TOOLS/SECURE STORAGE CABINETS (CONT)



Tape Storage Rack

NOTE

All tapes and tape racks are secured the same way.

1. Make sure all tapes have been returned to the containers and stowed in racks.
2. Position tape storage rack retaining bar and insert pins in both ends of bar. Bars are stored on shelf, under tapes.

2-85. TURN OFF TECHNICAL POWER

1. Make sure these devices are powered off

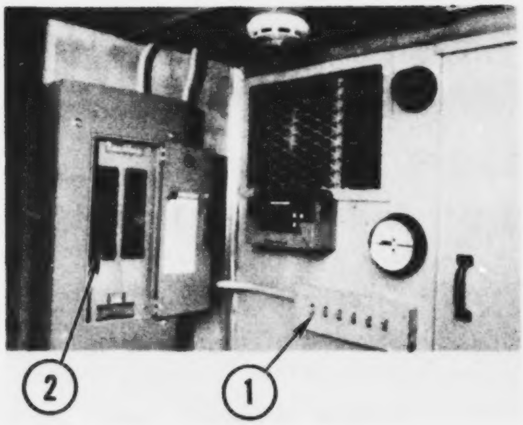
   CPU
   Tape drives
   Console terminal
   Disk drives
   Card reader/punch
   Line printer
   I/O terminals
   Console printer
   Magnetic Tape cleaner

2. At tech power box, set all circuit breakers to OFF.

2-86. TURN OFF UTILITY POWER

NOTE

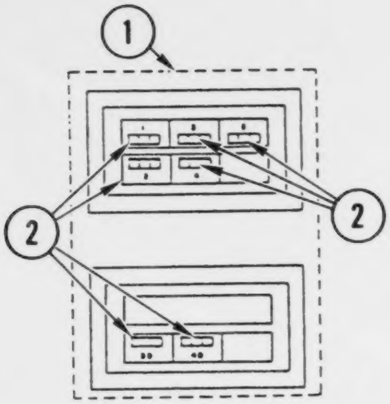
This procedure turns off all lights in van. Have alternate light source ready.



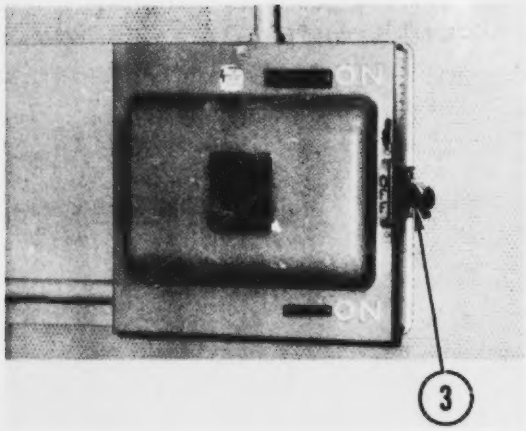
1. Switch off interior lights.

2. At utility power box, set all circuit breakers to OFF.

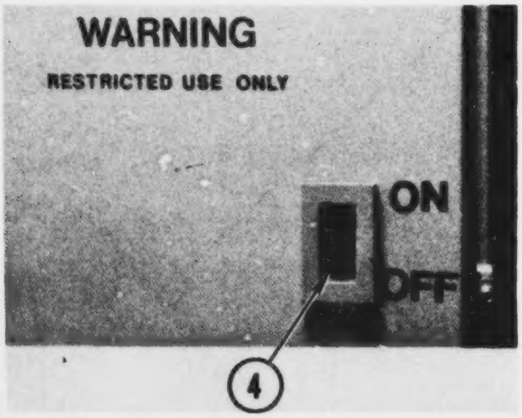
2-87. TURN OFF SYSTEM POWER



1. Open bottom door of power distribution box.
2. Set all circuit breakers to OFF position.

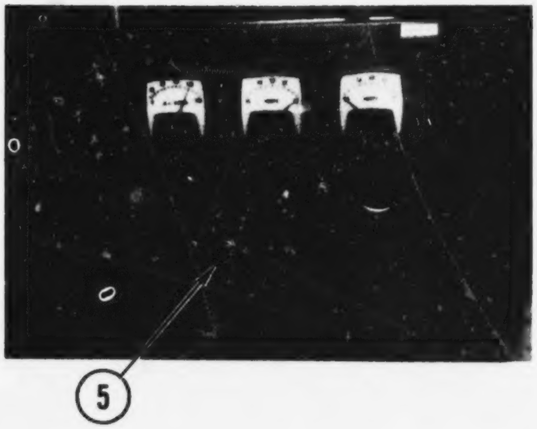


3. Set bypass switch to OFF.

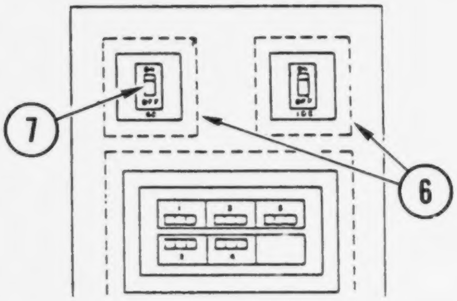

WARNING
RESTRICTED USE ONLY
ON
OFF
4

4. Set frequency converter circuit breaker to OFF.

2-87. TURN OFF SYSTEM POWER (CONT)



5. At power control box, press OFF.



6. Open top doors of power distribution box.

7. Set circuit breakers to OFF as shown. Close top door.

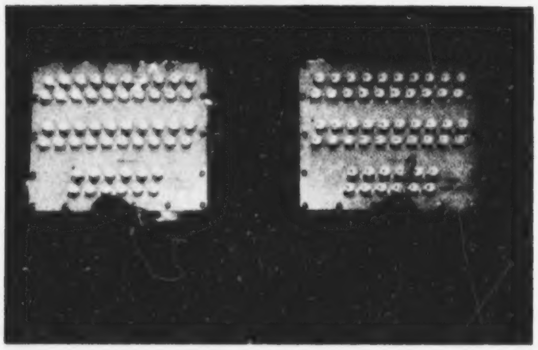
8. Using flat tip screwdriver, tighten screws in top and bottom doors.

2-88. REMOVE SIGNAL LINES

INITIAL SETUP

Materials/Spare Parts
- Tags
- Pen or pencil

1. Notify remote operator by telephone that you are removing the signal lines.



2. Outside van at signal entrance panels lift either door and look at the connectors inside.

NOTE

Panel on your right is TACTICAL (A) panel. Panel on your left is REMOTE (B) panel.

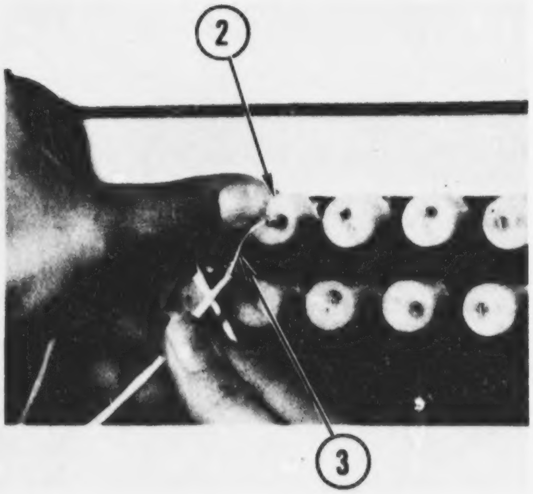
3. To remove wires, go to Part A of this task.

4. To remove cable, go to Part B of this task.

Part A

NOTE

There are 26 pairs of binding posts. Follow these steps to remove wires from any of them.

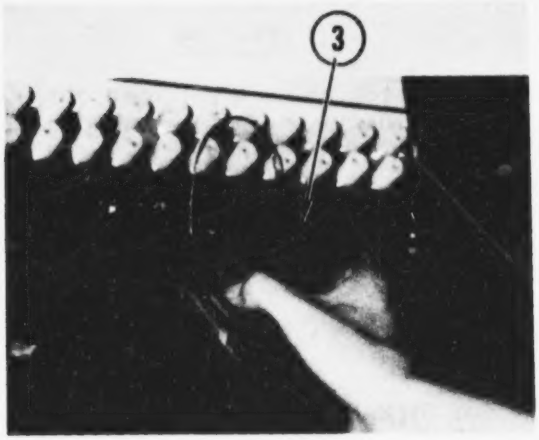


1. Tag wires before removing them.

2. Press binding posts.

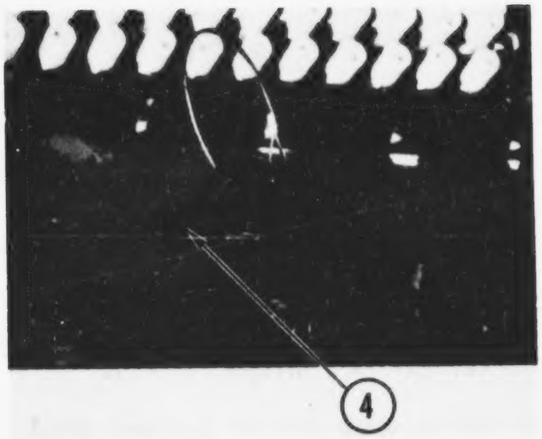
3. Pull out wire and release binding post.

2-88. REMOVE SIGNAL LINES (CONT)



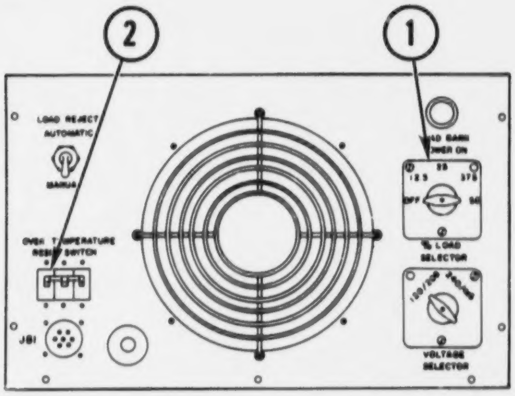
Part B

1. Turn connector lock to release connector. Remove cover.
2. Pull off cable connector.
3. Press cover back on outlet as shown.



4. Turn connector to lock as shown.

2-89. SHUT DOWN POWER PLANT


2
1
LOAD REJECT
AUTOMATIC
MANUAL
OVER TEMPERATURE RESET SWITCH
LOAD BANK POWER ON
12.5
25
37.5
OFF
50
% LOAD SELECTOR
VOLTAGE SELECTOR

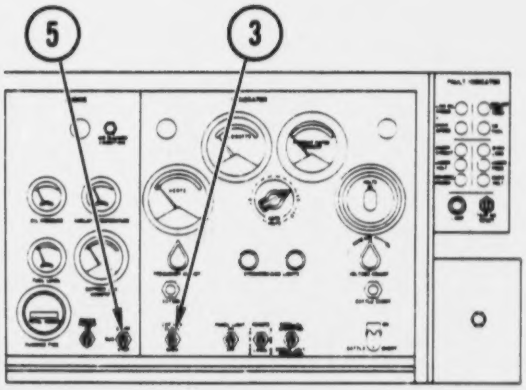
CAUTION

Never stop power plant when it is under load.

NOTE

Run power plant with no load for 3 minutes before shutting down.

1. On load bank, set % LOAD SELECTOR to OFF.
2. Set OVER TEMPERATURE RESET SWITCH to OFF.



3. Set CRT BRK switch to OPEN.
4. Allow generator to operate about 3 minutes with no load applied.
5. Set START/RUN/STOP switch to STOP position.

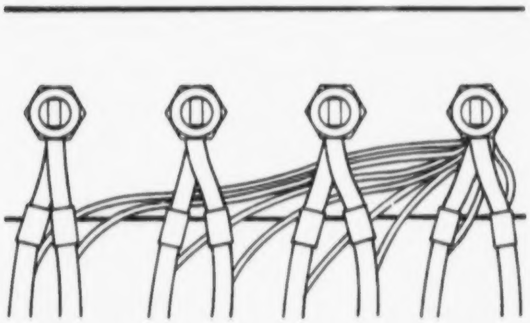
NOTE

Do not close throttle.

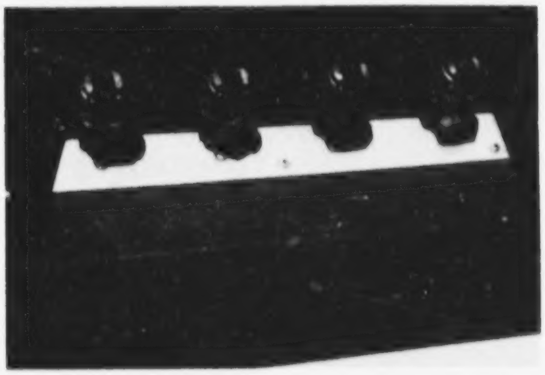
2-90. DISCONNECT VAN ADAPTER CABLES FROM SWITCH BOX

WARNING

Electrocution may result if task is done while source power is on.



1. Make sure source power is OFF. If power plant is source, make sure both generator units are stopped.
2. Remove power cable leads:
   a. Open door of switch box
   b. Pull up on four wire locking pins
3. Using plastic wrench from generator, loosen four nuts.



4. Pull leads free.
5. Hand tighten nuts.
6. Push down wire locking pins.

DANGER
HIGH VOLTAGE

7. Close and latch switchbox door.

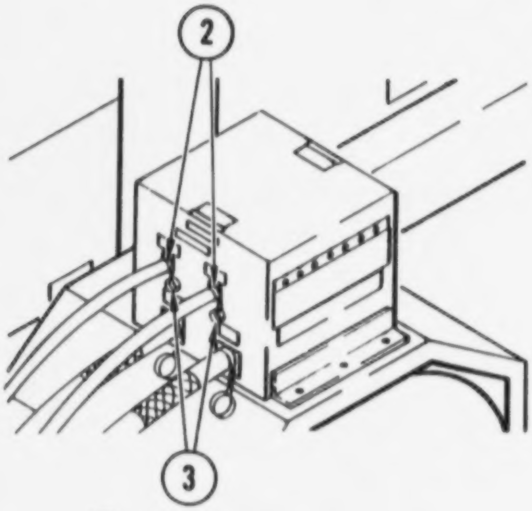
NOTE

If preparing for movement, make sure adapter cables are stored in van on reels with van power cables.

2-91. DISCONNECT AND STOW POWER PLANT CABLE

INITIAL SETUP

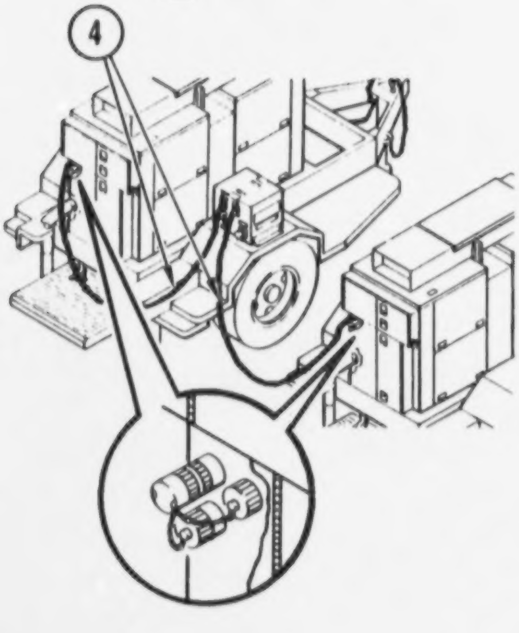
Common Tools	Personnel Required
• Tool kit	• Two



WARNING

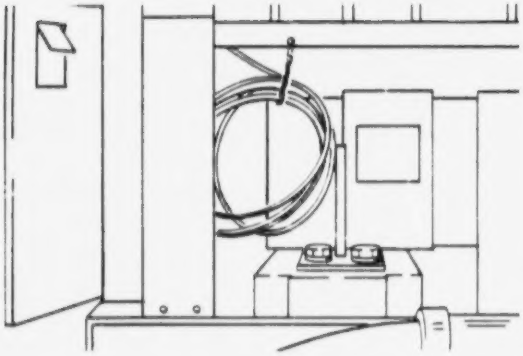
Electrocution may result if this task is done with either generator unit operating.

1. Make sure both generator units are stopped (para 2-89).
2. Disconnect paralleling cables at switch box.
3. Replace switch box cable caps.



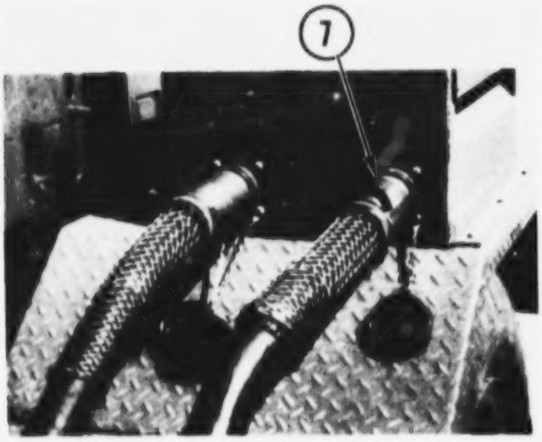
4. Remove cables from paralleling connections and replace shorting plugs.

2-91. DISCONNECT AND STOW POWER PLANT CABLE (CONT)



5. Open rear curbside generator door on unit 2 and stow parallel cables.
6. At switch box, find cable to connector marked:

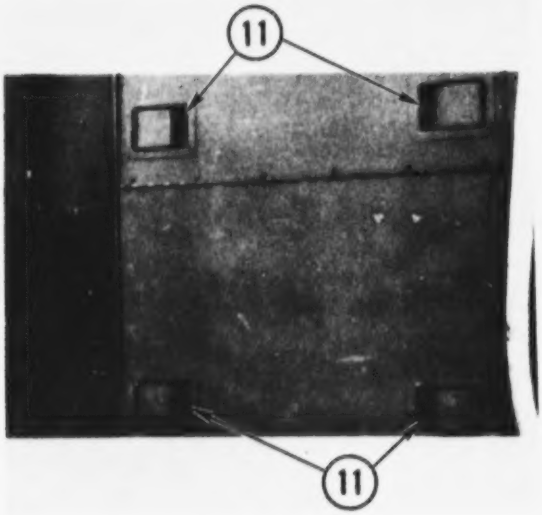
   POWER CABLE
   GEN NO. 2



7. To disconnect cable, turn collar.
8. Pull cable free.
9. Turn cap on switch box connector.
10. Screw cap on cable connector.

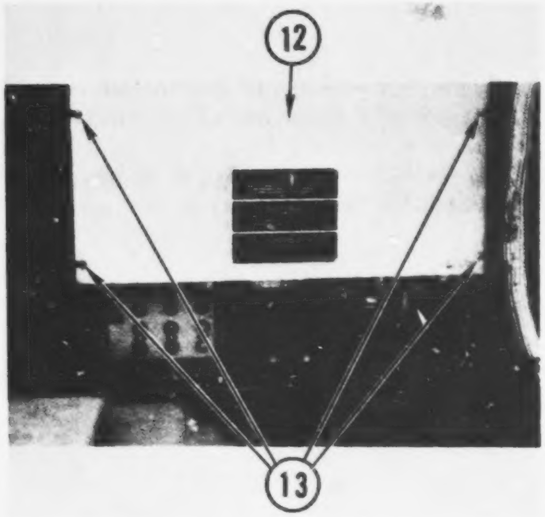
NOTE

If power plant is to be moved on short hauls to another emplacement, do not disconnect the leads from the terminal board. Simply lay the switch-box-end of the cable around the frame of the trailer and secure it with tie wraps or tape.



11. On second generator, pull open four latches. Open and latch cover.

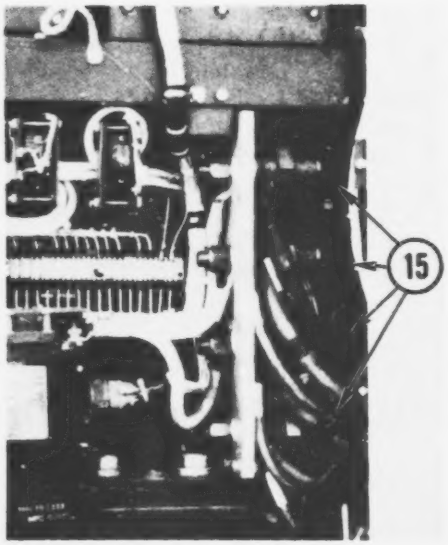
2-91. DISCONNECT AND STOW POWER PLANT CABLE (CONT)



12. Locate load terminal board cover.

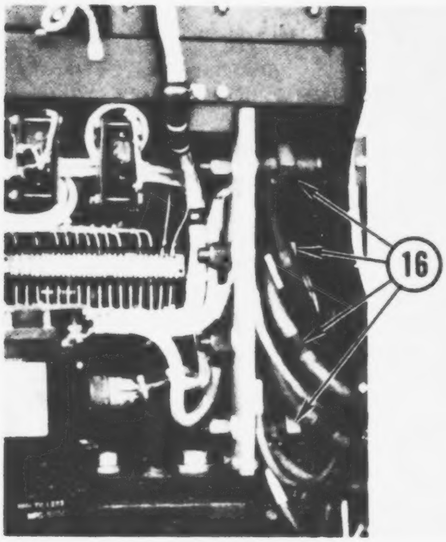
13. Remove screws holding cover in place.

14. Remove cover.



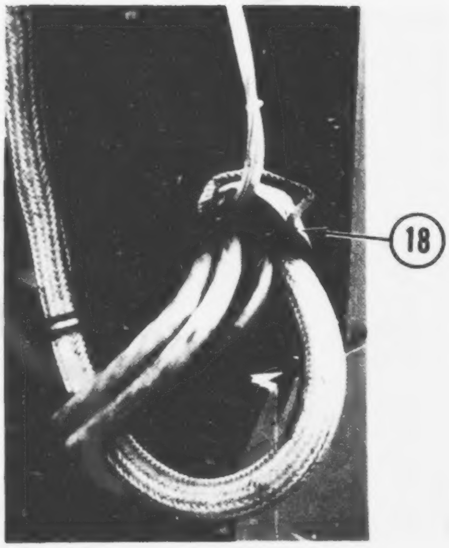
15. Pull out on wire locking pins until they point straight out.

2-91. DISCONNECT AND STOW POWER PLANT CABLE (CONT)



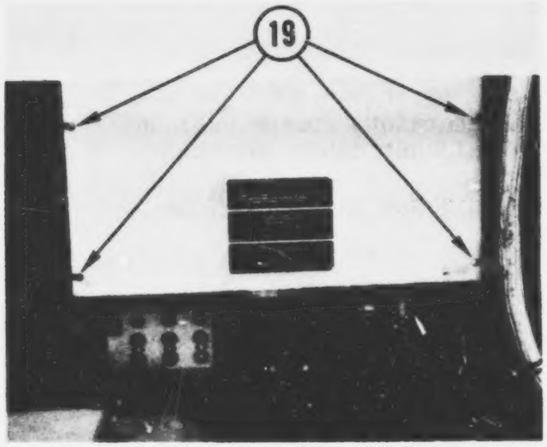
16. Using wrench provided with generator, loosen nuts until you can pull out cable leads.

17. Pull out all cable leads.

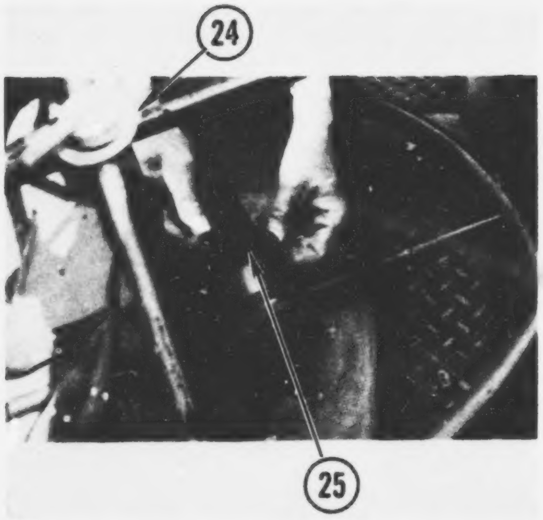


18. Pull cable through sleeve.

2-91. DISCONNECT AND STOW POWER PLANT CABLE (CONT)



19. Replace cover. Turn and tighten screws.
20. Close generator cover and push in four latches.
21. Get power cable reel.
22. Reel up cable.
23. Set reel on reel mount on fender. Make sure holes in reel line up with hole in reel mount.



24. Insert T-bar. Turn bar as shown until tight.
25. Strap cable in place.
26. At switch box, find cable to connector marked:
    POWER CABLE
    GEN NO. 1
27. Repeat steps 7 thru 25 for other cable.

2-92. DISCONNECT AND STOW VAN POWER CABLES

INITIAL SETUP

Special Tools	Materials/Spare Parts	Personnel Required
● Decimal socket set	● Reel tiedown hardware ● Power cable reels	● Two

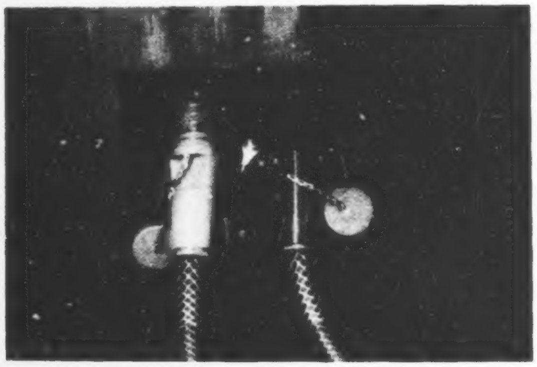
WARNING

Electrocution may result if task is done with power on.

1. Make sure power is off at source.

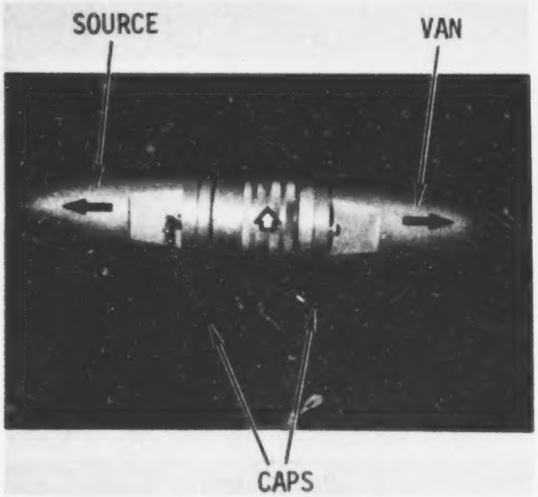
NOTE

Disconnecting adapter cables or connectors from a commercial power service must be done by a qualified electrician. Disconnect both cables the same way.



2. If connected to commercial power, see your supervisor for instructions.
3. At van, lift power entrance panel.
4. Unscrew collar as shown.
5. Pull cable free.
6. Screw on cap.
7. Close and secure entrance panel door. Secure with latch on each side of door.

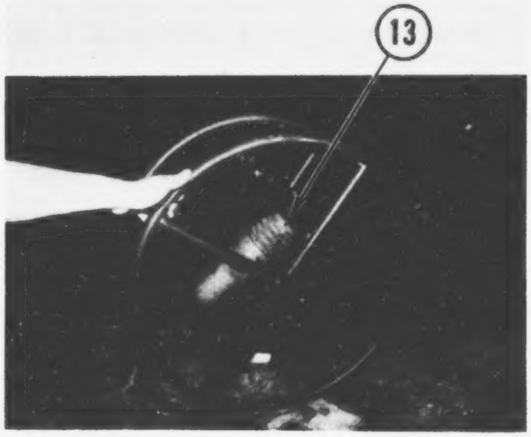
2-92. DISCONNECT AND STOW VAN POWER CABLES (CONT)



NOTE

Before stowing, you must separate cables.

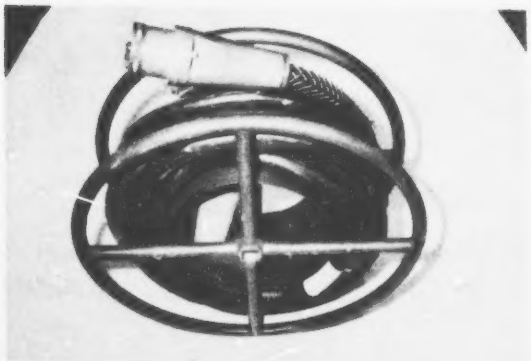
8. Lay cables out in straight line.
9. At each connection, unscrew collar.
10. Pull cables apart.
11. Screw caps on each end of cable.



NOTE

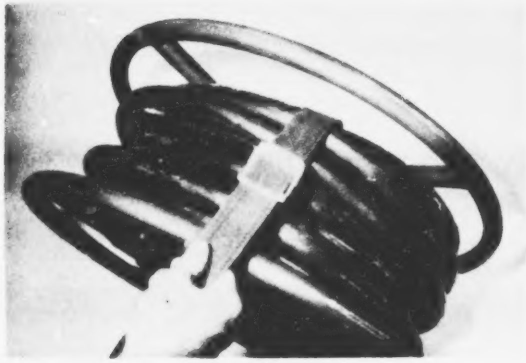
You need one cable reel for each length of cable. Follow steps 12 thru 16 to reel up each cable.

12. Put cable reel on ground.
13. Insert head of cable into reel as shown.
14. Reel up cable.



15. When reeled, cable should appear as shown.

2-92. DISCONNECT AND STOW VAN POWER CABLES (CONT)



16. Strap reel as shown.

CAUTION

Make sure both straps are tight. Loose straps will allow cable to unravel when you try to stow it.

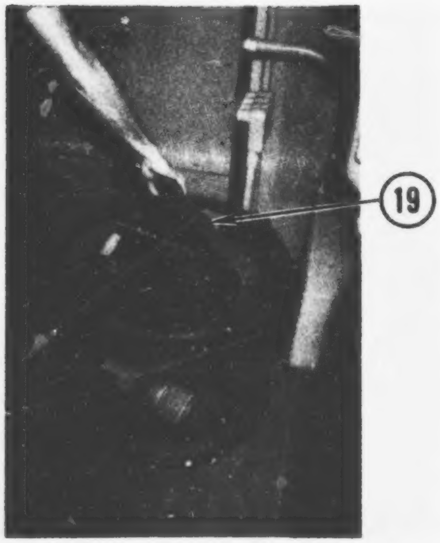
17. Repeat steps 12 thru 16 until all cables are on reels.

WARNING

Loaded power cable reel is heavy. Don't attempt to lift without help.

NOTE

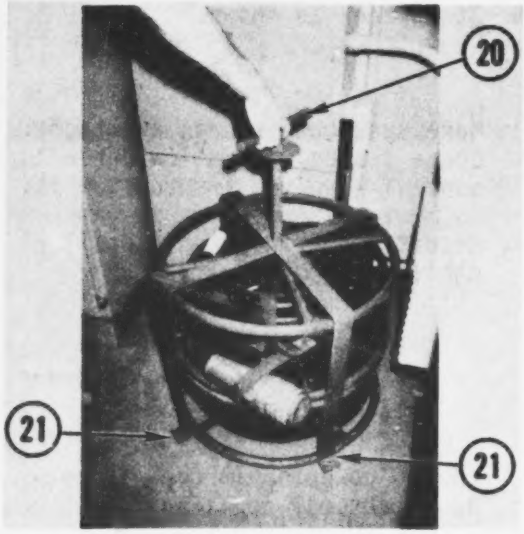
Be sure to store adapter cable on reel inside van.



18. With partner, stack two reels on top of each other inside van. Make sure holes in reels line up with mounting hole in floor.

19. Replace brackets. Make sure holes in brackets line up with holes in reels.

2-92. DISCONNECT AND STOW VAN POWER CABLES (CONT)



20. Insert T-bar through holes. Screw in T-bar, but do not tighten.

21. Bolt down brackets. Tighten T-bar.

22. Repeat steps 18 thru 21 for other reels.

2-93. RAISE AND STOW VAN GROUND RODS

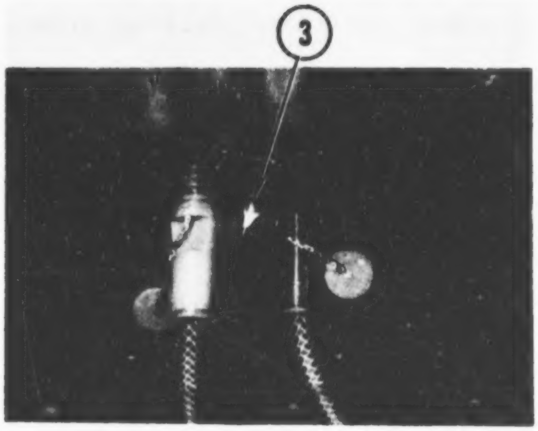
INITIAL SETUP

Common Tools
- Sledge hammer
- Tool kit

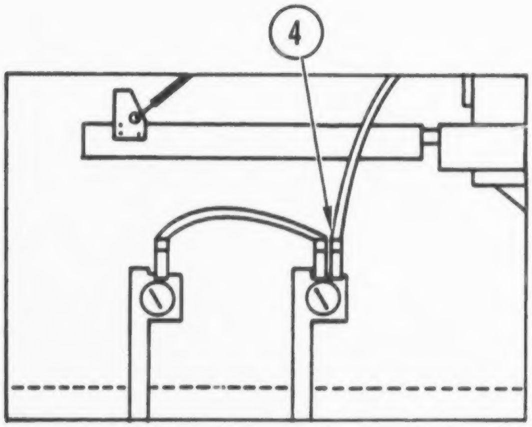
WARNING

Electrocution may result if task is attempted while source power is on.

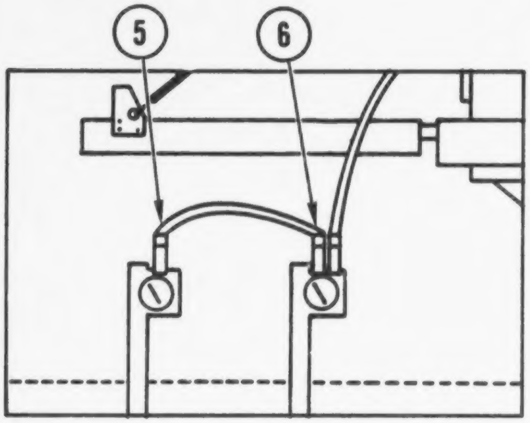
1. Make sure source power is off.
2. Open cover to power entrance panel.
3. Disconnect ground lead.



4. Disconnect other end of ground lead from rod.



2-93. RAISE AND STOW VAN GROUND RODS (CONT)



5. Disconnect one end of ground lead from rod.

6. Disconnect other end of ground lead from second rod.

NOTE

See technical circular TC 11-6 for ground rod removal techniques if rods cannot be removed using steps 7 and 8.

7. Use sledge hammer to work first ground rod loose. Pull rod from ground.

8. Use sledge hammer to work second ground rod loose. Pull rod from ground.

9. Stow rods and leads.

2-94. REPLACE AIR CONDITIONER DRAIN PLUGS

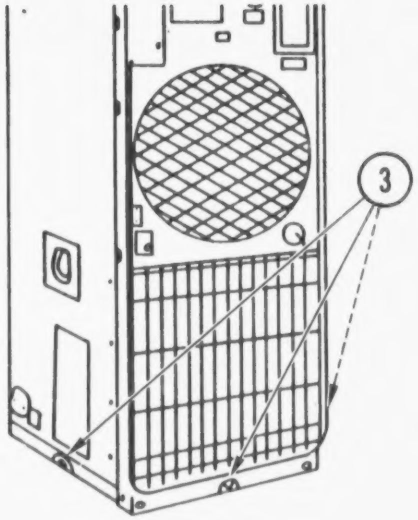
INITIAL SETUP

Common Tools	Personnel Required	Support Equipment
• Hex key allen set - decimal	• Two	• Ladder

WARNING

Hearing loss or injury may result if this task is done with air conditioners ON.

1. Power OFF all four air conditioners.
2. Unstow folding ladder (para 2-15). Place ladder against front of van.
3. Using 3/8 inch hex key wrench, replace drain plugs at bottom of each air conditioner.



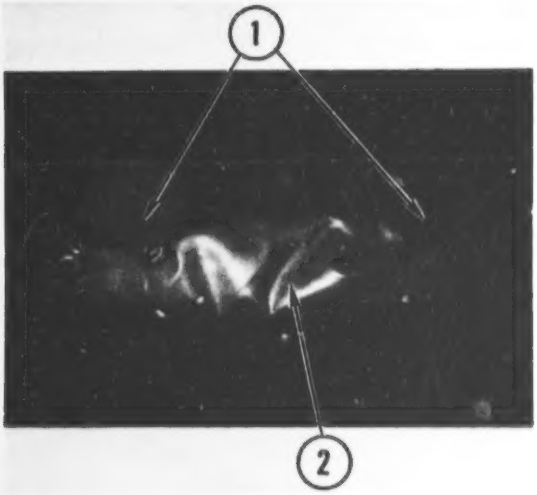
NOTE

There are three drain plugs on each air conditioner. One is center front. One is center-left side. One is center-right side.

2-95. LOWER AIR CONDITIONER COVER FLAPS

INITIAL SETUP

Support Equipment	Personnel Required
● Ladder	● Two



1. Open captive fasteners to free flaps.
2. Unroll flap.

NOTE

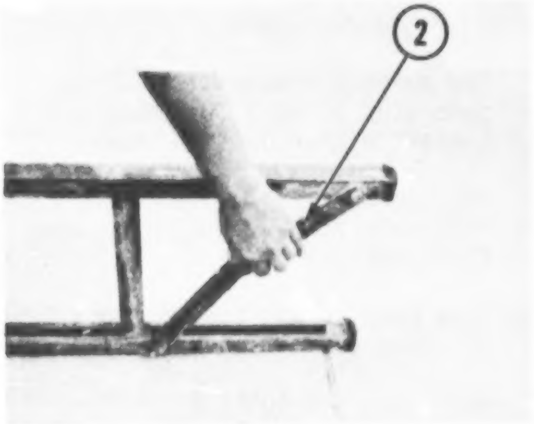
One person holds ladder in place.

3. Zip flap shut.

2-96. STOW FOLDING LADDER

INITIAL SETUP

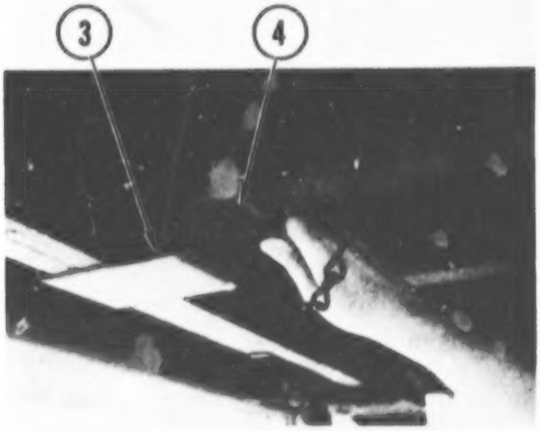
Personnel Required
- Two



1. Place ladder on ground.
2. Loosen hinge. Collapse ladder.

NOTE

Two crew members are required to perform steps 3 thru 5. Each member should take one end of ladder.



3. Underneath van, attach clamp over one end of ladder.
4. Insert pin.
5. Repeat steps 3 and 4 for other end of ladder.

2-97. PREPARE POWER PLANT FOR MOVEMENT

INITIAL SETUP

Common Tools
- Tool kit
- Sledge hammer

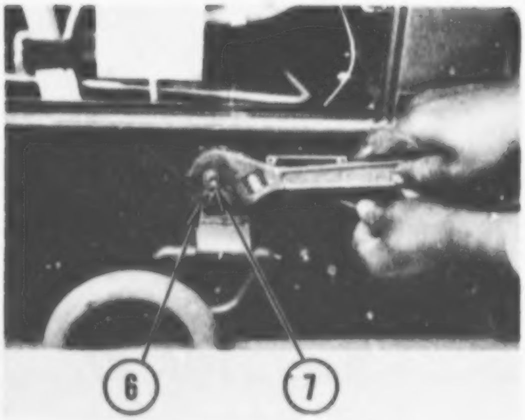
Personnel Required
- Two

NOTE

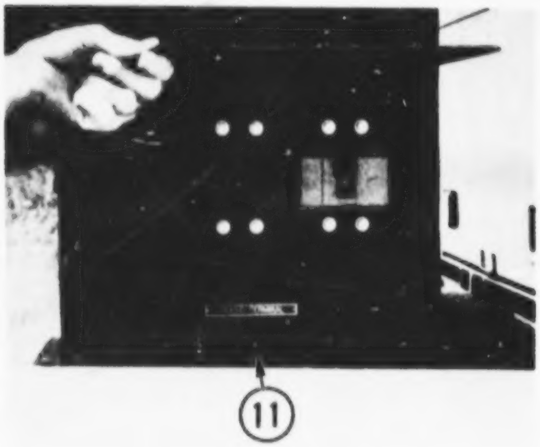
The power plant consists of two generator units. Use these steps to prepare either unit for movement.

1. Make sure generator is not running and power plant cables have been disconnected.
2. Stow power plant cables (para 2-91) if necessary.
3. Make sure all doors are closed.
4. At grounding rod, loosen screw until you can pull ground cable free.
5. Using sledgehammer, work ground rods out of ground.

6. At generator unit, pull up on locking pin.
7. Loosen nut.
8. Pull ground cables free.



2-97. PREPARE POWER PLANT FOR MOVEMENT (CONT)

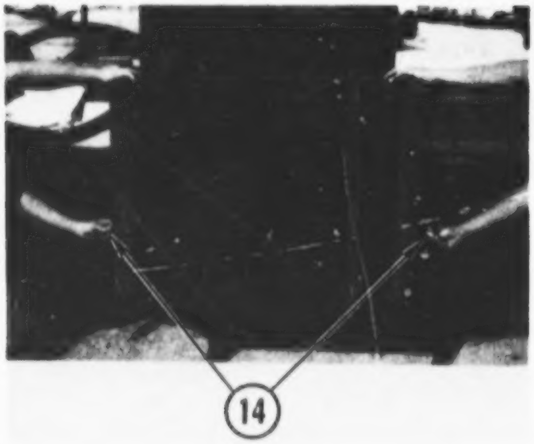


9. Disconnect ground wire from stud on trailer.

10. Stow ground rods, cables, and clamp in box on trailer.

11. At switch box, remove wing nut. Lift cable terminal off stud. Replace wing nut.

12. Stow switch box ground cable with paralleling cables in curbside compartment of generator unit 2.

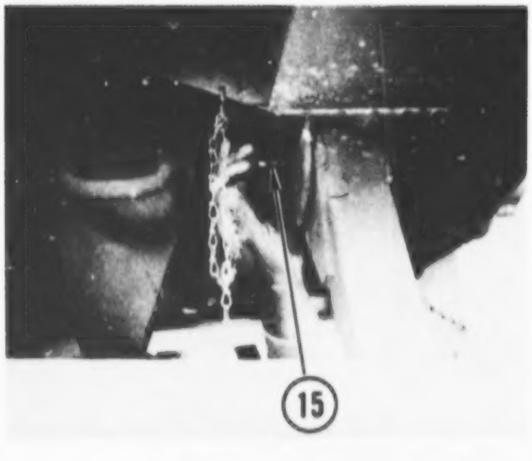


13. With partner, raise rear platform.

14. Insert locking pins at each end of platform.

NOTE

There are two jacks. Follow steps 15 thru 19 to prepare either of them for movement.

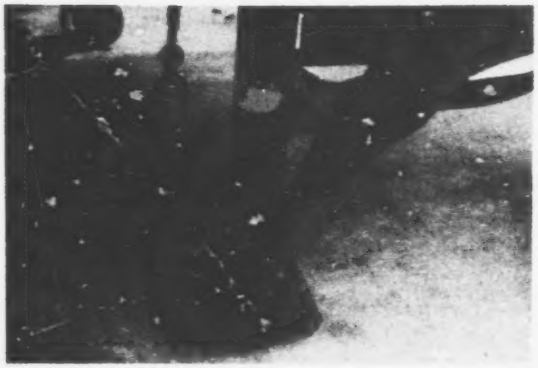


15. Free safety clips from locking pin. Pull out locking pin from behind jack.

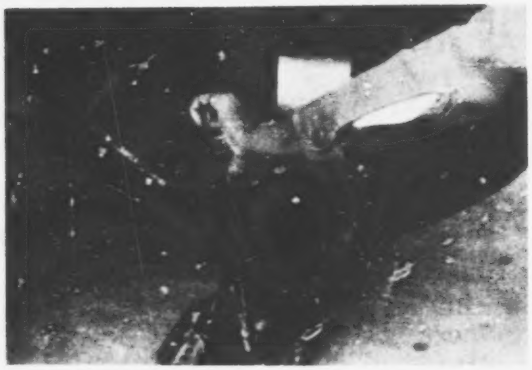
WARNING

Jack is spring loaded and will snap up when latch is pulled. Hold jack base firmly.

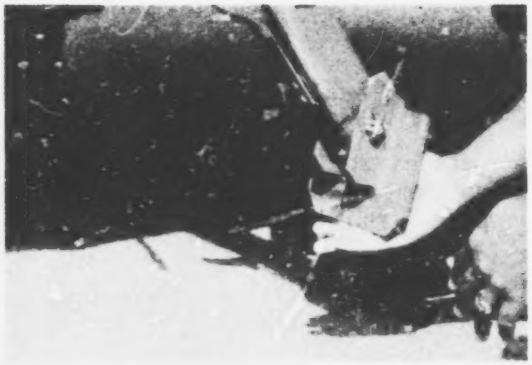
2-97. PREPARE POWER PLANT FOR MOVEMENT (CONT)



16. While holding jack base, pull out latch as shown.

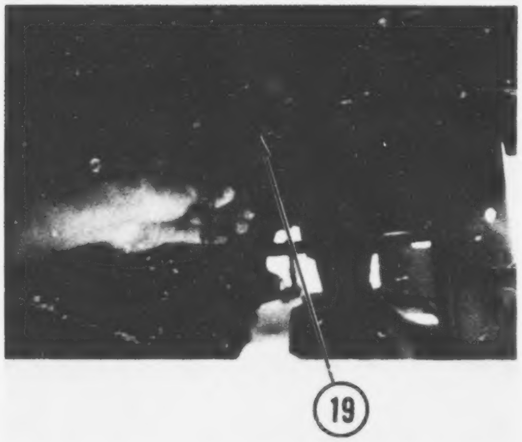


17. While holding latch out, guide shoe up as far as it will go. Let go of latch.



18. Push up jack under platform so locking pin holes line up.

2-97. PREPARE POWER PLANT FOR MOVEMENT (CONT)

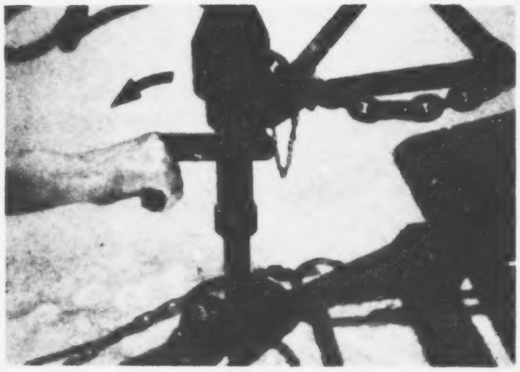


19. Push in locking pin. Attach safety clip.

20. Repeat steps 15 thru 19 for other jack.

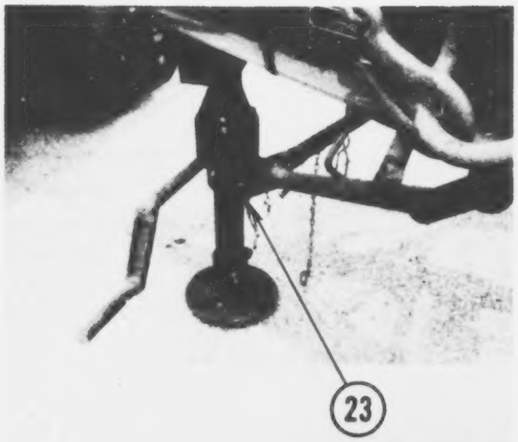
CAUTION

Generator must be hitched to tow vehicle before you do steps 22 thru 24.



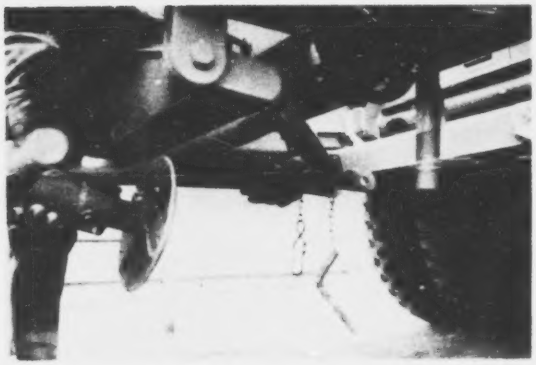
21. Hitch generator to towing vehicle.

22. Turn handle as shown until shoe is off ground.

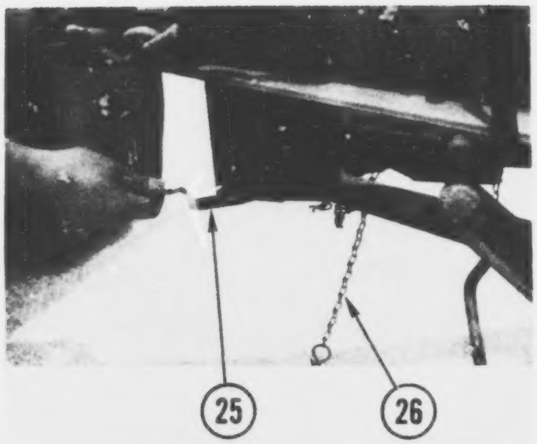


23. Free safety clip. Pull out locking pin.

2-97. PREPARE POWER PLANT FOR MOVEMENT (CONT)

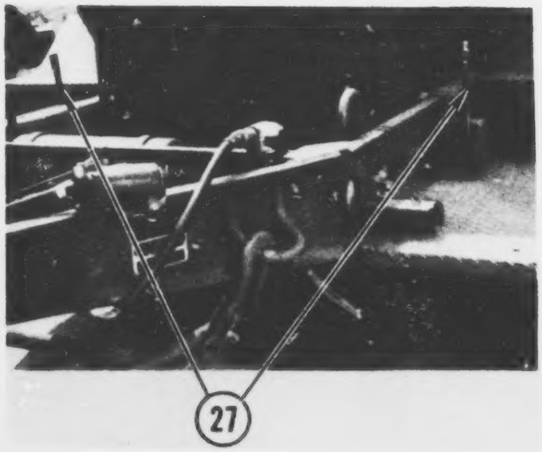


24. Push up leg as shown.



25. Push in locking pin. Attach safety clip.

26. Stow locking pin and chain.

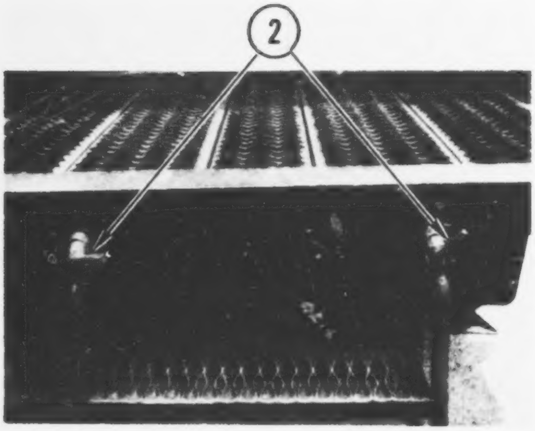


27. Push up both brake handles.

2-98. RAISE REAR PLATFORM/STOW BOARDING LADDERS AND HANDRAIL

INITIAL SETUP

Personnel Required
- Two



NOTE

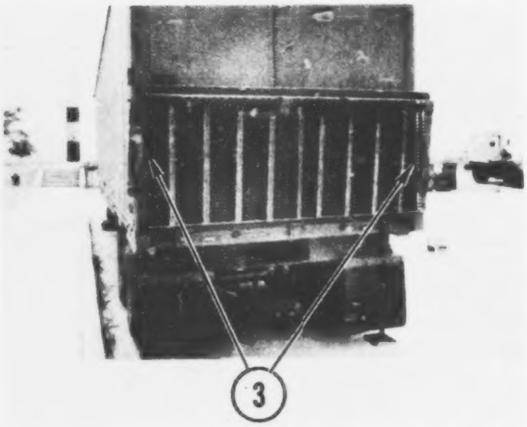
Handrail is stowed in brackets on the inside of the rear door.

1. Remove and stow handrail.

2. Disconnect rear boarding ladder.

   a. Turn latch handles in direction shown by arrows.

   b. Pull out to remove ladder.

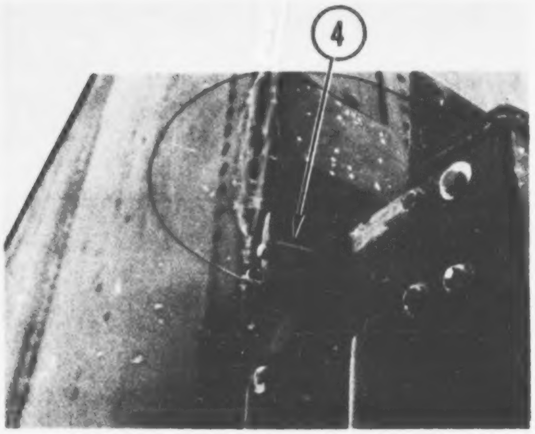


WARNING

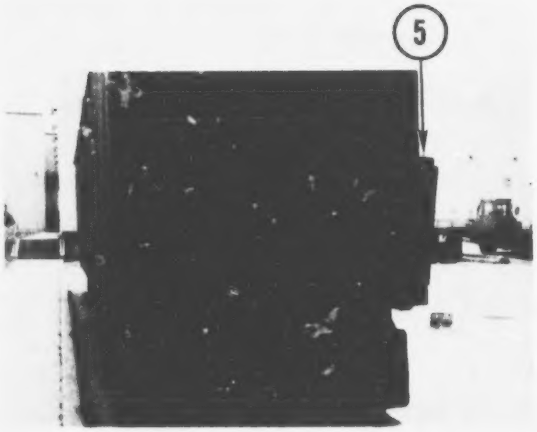
Do not stand under platform. Grip platform from side.

3. With partner, push up rear platform.

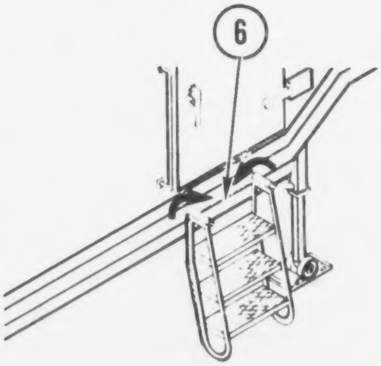
2-98. RAISE REAR PLATFORM/STOW BOARDING LADDERS AND HANDRAIL (CONT)



4. Insert pin at one end of platform.



5. Insert pin at other end of platform.



6. Disconnect side boarding ladder.

WARNING

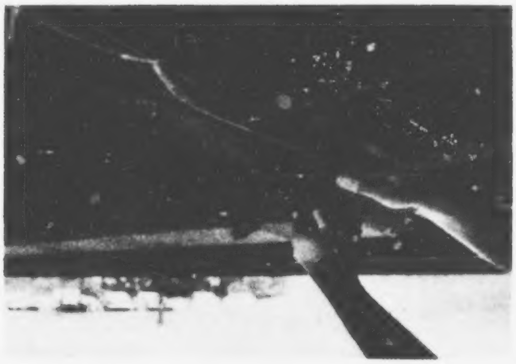
Boarding ladders can fall from undercarriage unless retaining bars are in place and pinned.

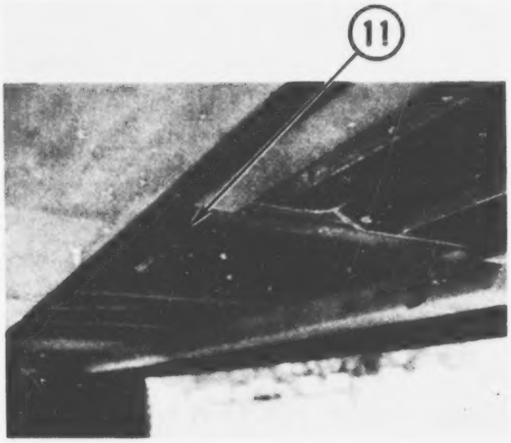
2-98. RAISE REAR PLATFORM/STOW BOARDING LADDERS AND HANDRAIL (CONT)

7. Underneath van, set boarding ladders in storage position on undercarriage.

8. While your partner holds ladders in place, put bar over ladder.

9. Turn handle nut until bar is tight.





10. Put second bar over other ladder.

11. Turn handle nut until bar is tight.

12. Make sure both ladders are secure and handle nuts are tight.

2-99. RAISE LEVELING JACKS

INITIAL SETUP

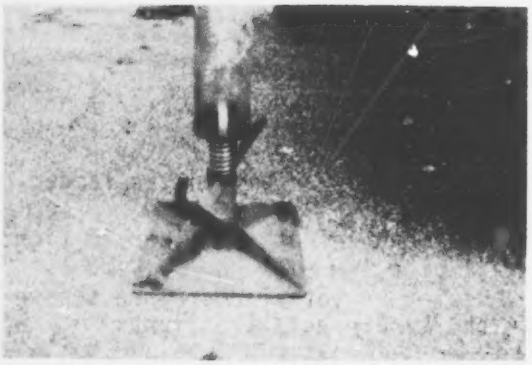
Personnel Required
- Two

NOTE

You need a jack handle to operate the leveling jacks. Handles (2 ea) are stored either in the recessed area of the rear bumper or the storage area beneath the air conditioners (not shown).

NOTE

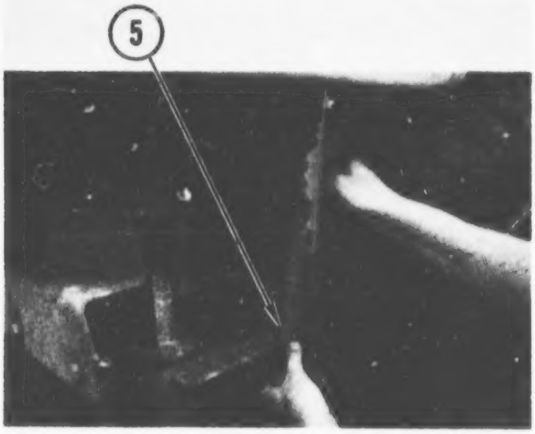
This procedure must be done before van is hitched to towing vehicle. Lower front of van if screw will not clear shoe in step 1.



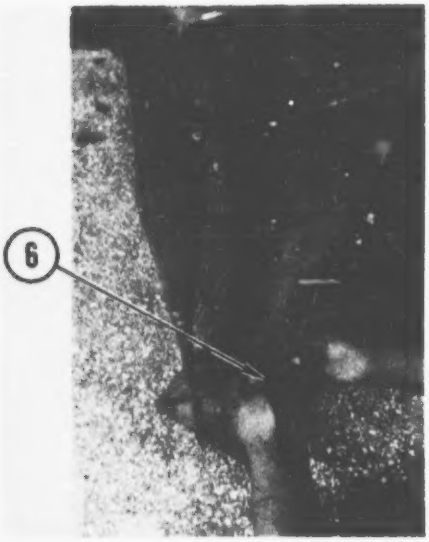
1. Turn handle as shown until screw is free of shoe.
2. Remove handle. Place on ground nearby.
3. Put shoe next to handle.

4. Remove upper pin from brace.

2-99. RAISE LEVELING JACKS (CONT)



5. Remove lower pin from brace.



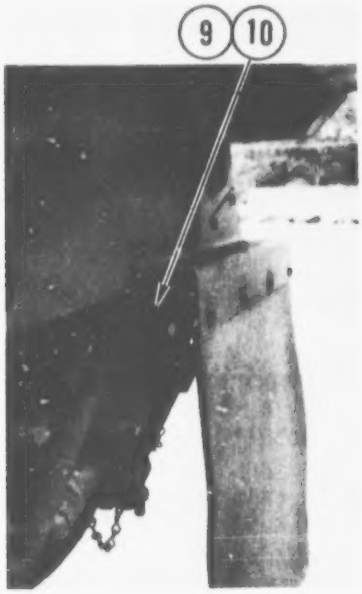
6. Line up brace as shown. Attach lower pin.

2-99. RAISE LEVELING JACKS (CONT)

7. Pull up brace as shown. Attach upper pin.

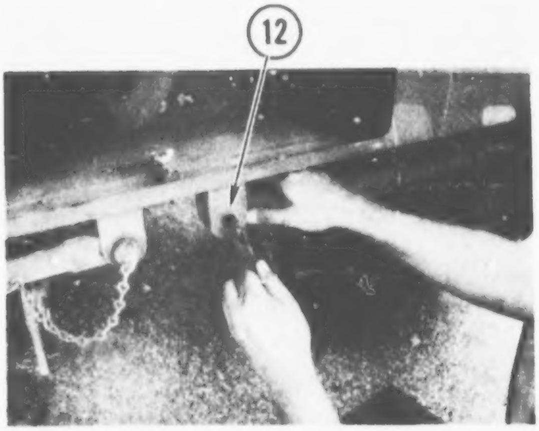
8. Remove pin from inside brace.

2-99. RAISE LEVELING JACKS (CONT)

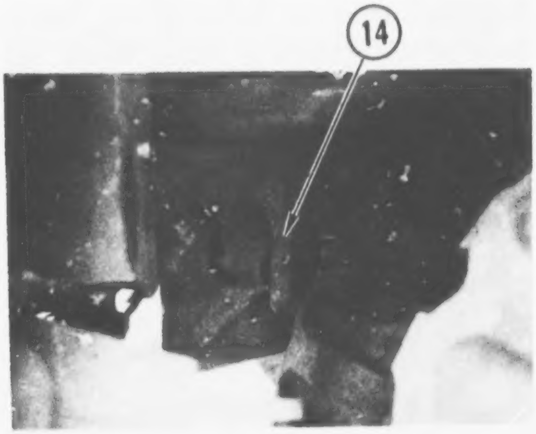


9. Push up jack around air brake connection so pin holes line up.
10. Insert pin.

11. Push up brace so holes line up.
12. Insert pin.



13. Put shoe in place on post.
14. Install and tighten handle nut.
15. Stow jack handles.



2-100. HITCH VAN TO TOWING VEHICLE/RAISE LANDING GEAR

INITIAL SETUP

Personnel Required
- Two

NOTE

Step 1 requires two crew members. Each should take one crank. You should both turn your cranks at the same time and at about the same speed to raise kingpin above fifth wheel on towing vehicle. (See TM 9-2330-362-14.)

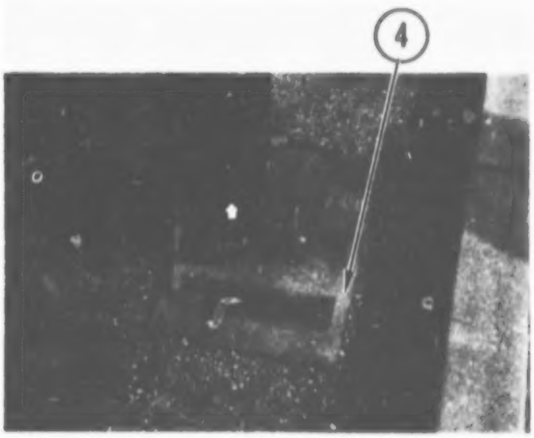
NOTE

Crank works in low or high gear. In low gear, crank is easier to turn. In high gear, crank is difficult to turn but works faster.

- To select low gear, push crank in as far as it will go
- To select high gear, push crank in as far as it will go. Give crank half turn. Pull it back toward you

1. Turn crank as shown. If crank has ratchet lever, make sure lever is set in direction you want to turn. Continue turning until kingpin is about five inches higher than fifth wheel.
2. Slowly back up towing vehicle until kingpin slides into notch on fifth wheel plate and locks into catch.

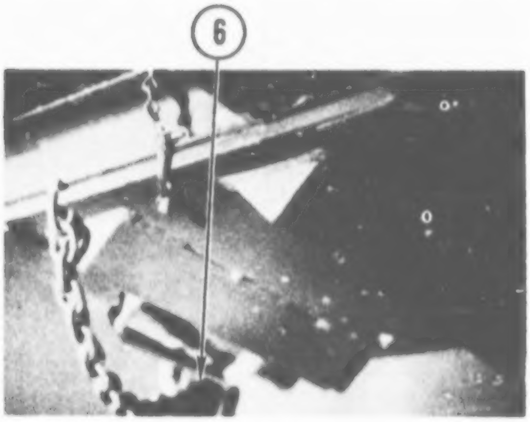
2-100. HITCH VAN TO TOWING VEHICLE/RAISE LANDING GEAR (CONT)



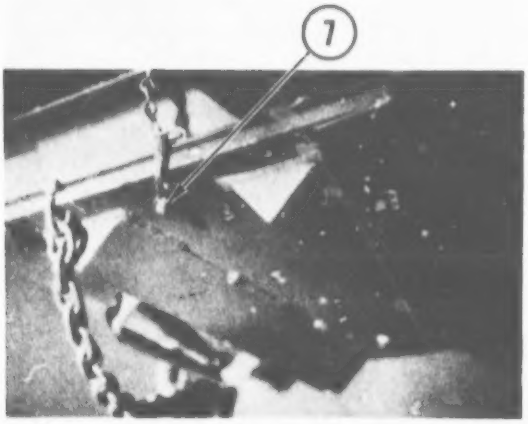
CAUTION

Do not raise landing gear until kingpin is securely latched to fifth wheel. Damage to fifth wheel, kingpin, and van may result.

3. Set crank lever to turn in opposite direction. Turn crank until landing gear is fully retracted.
4. Slide out sand plates.

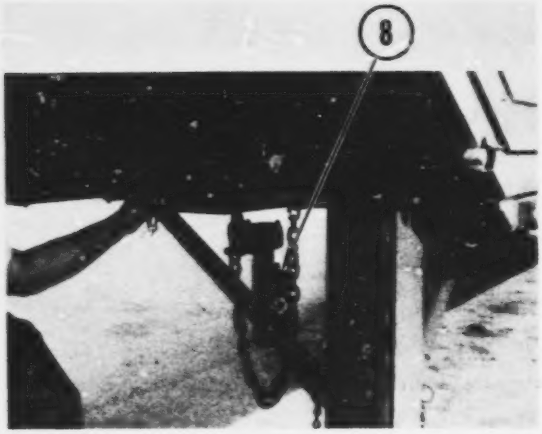


5. Stow plates on shelves on undercarriage.
6. Place link near center of chain on hook on frame.



7. Insert pin through holes in plate and shelf. Attach clip to end of pin.

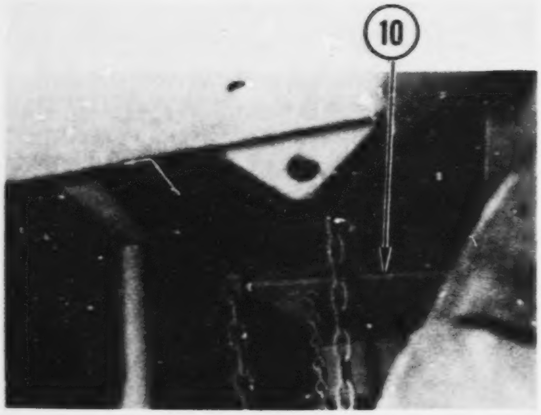
2-100. HITCH VAN TO TOWING VEHICLE/RAISE LANDING GEAR (CONT)



7. Remove cranks.

8. Store crank in holster beside landing gear.

9. Fasten chain connector.



10. Locate metal retaining bar under rear shelf and remove pin.

    a. Raise up and swing out of your way
    b. Store chocks on shelf
    c. Replace retaining bar and pin
    d. Wrap chains around rod
    e. Insert locking pin on chocks

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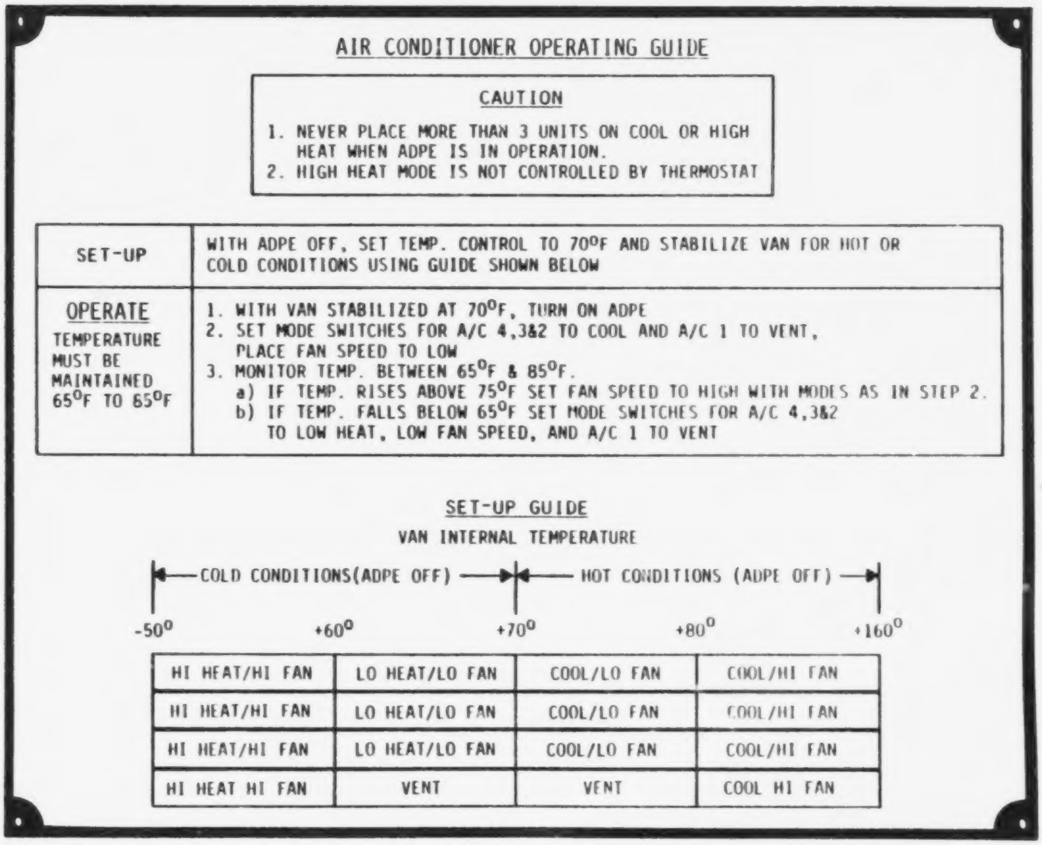
2-101. OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES

Instruction plates for operating equipment and decals containing warnings and cautions are located at strategic points throughout the interior and exterior of the van unit.

The air conditioner operating guide (fig. 2-37) is printed below for reference purposes. Equipment instruction plates for ADP equipment are reproduced in their respective device manuals (appendix A).



AIR CONDITIONER OPERATING GUIDE

CAUTION

1. NEVER PLACE MORE THAN 3 UNITS ON COOL OR HIGH HEAT WHEN ADPE IS IN OPERATION.
2. HIGH HEAT MODE IS NOT CONTROLLED BY THERMOSTAT

SET-UP	WITH ADPE OFF, SET TEMP. CONTROL TO 70°F AND STABILIZE VAN FOR HOT OR COLD CONDITIONS USING GUIDE SHOWN BELOW
OPERATE TEMPERATURE MUST BE MAINTAINED 65°F TO 65°F	1. WITH VAN STABILIZED AT 70°F, TURN ON ADPE 2. SET MODE SWITCHES FOR A/C 4,3&2 TO COOL AND A/C 1 TO VENT, PLACE FAN SPEED TO LOW 3. MONITOR TEMP. BETWEEN 65°F & 85°F. a) IF TEMP. RISES ABOVE 75°F SET FAN SPEED TO HIGH WITH MODES AS IN STEP 2. b) IF TEMP. FALLS BELOW 65°F SET MODE SWITCHES FOR A/C 4,3&2 TO LOW HEAT, LOW FAN SPEED, AND A/C 1 TO VENT

SET-UP GUIDE

VAN INTERNAL TEMPERATURE

HI HEAT/HI FAN	LO HEAT/LO FAN	COOL/LO FAN	COOL/HI FAN
HI HEAT/HI FAN	LO HEAT/LO FAN	COOL/LO FAN	COOL/HI FAN
HI HEAT/HI FAN	LO HEAT/LO FAN	COOL/LO FAN	COOL/HI FAN
HI HEAT HI FAN	VENT	VENT	COOL HI FAN

Figure 2-37. Air Conditioner Operating Guide

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

2-102. OPERATION IN UNUSUAL WEATHER

The van is designed to provide a comfortable operating shelter even under severe weather conditions. However, special procedures are required for operation in extreme cold, duststorms, sandstorms, mud, or ice. See section IV of TM 9-2330-362-14 for special requirements for operation of the van unit under unusual conditions. Operation of the system under unusual weather conditions is covered in the following paragraphs.

2-103. OPERATION IN EXTREME COLD

Whenever the outside temperature falls to 0°F or lower, special procedures are required for rapid warm-up and to maintain a stable operating environment.

a. Rapid Warm-Up. After emplacement or a complete shut off, it may be necessary to stabilize the operating temperature in a short time. If rapid warm-up is required:

1. Turn on incandescent lights.
2. Remove three curbside portable electric heaters from storage and place them in operation at maximum temperature. Direct their air flow as follows:

   Heater No. 1 to CPU and tape drive cabinet
   Heater No. 2 to card reader/punch
   Heater No. 3 to line printer and disk drive cabinet

3. Set four air conditioners to LO HEAT. Set thermostat to 85°. Set fan to LOW. Monitor air conditioner operation for 5 minutes to assure that all four are operating properly.
4. After 5 minutes set all four air conditioners to HI HEAT and fan to HIGH.
5. Monitor van temperature. When it reaches 0°F, power ON fans in communications equipment cabinets A and B.
6. Turn on all fluorescent lights.
7. Monitor van temperature. When it reaches +30°F, power ON frequency converter. Set bypass switch to FREQUENCY CONVERTER.
8. When van temperature reaches +40°F, power up system (para 2-46).
9. Monitor van temperature and humidity. When temperature reaches +60°F and humidity is at least 10% you can check for operational readiness (para 2-50).

b. Daily Operation. Cold weather operation requires certain precautions.

1. Restrict entry and exit of personnel as much as possible. If conditions do not allow this, operate a portable heater in the vestibule to help warm cold air before it enters work area.

2. Monitor inside humidity. Make sure it does not fall below 20% when ADP subsystem is in operation.

3. Make sure that disk packs are fully stabilized and free of moisture before loading them.

2-104. OPERATION IN EXTREME HEAT

In extremely hot weather or if the van has been shut down with environmental subsystem turned off for several hours, the temperature and humidity must be brought to within the operating range of 75°F and below 80% relative humidity.

Operate the air conditioners in the cooling mode as follows:

1. Set mode switches on temperature control panel for a/c's 4, 3, and 2 to COOL and a/c number 1 to VENT.

2. Set FAN to HI only if operating temperature is above 75°F or outside temperature is above 95°F.

3. When temperature reaches 75°, set FAN to LO. Turn on humidifier and monitor inside humidity. Make sure it does not fall below 20% when ADP subsystem is operating.

4. Continue to monitor inside temperature and operate only the air conditioner units necessary to maintain operating range.

2-105. OPERATING IN EXTREMELY HUMID CLIMATES

If you cannot maintain the DAS3 (D/C) van within the specified operating range (20% to 80%) due to external high humidity, try the following:

1. Ensure humidistat is set to nominal setting (i.e. 35% to 40%) and is working properly.

2. Close all fresh air vents on all four air conditioners.

3. Keep van doors closed and restrict exit and entry of personnel to a minimum.

4. Set air conditioner control box thermostat to 70°F.
    - If humidity inside van is 80% or higher, set FAN switch to HIGH
    - If humidity inside van is between 70% and 80% set FAN switch to LO

5. Set A/C units 4, 3 and 2 to COOL.
    - If humidity inside van is 80% or higher set A/C Unit 1 to HIGH HEAT.

NOTE

Constantly monitor HIGH HEAT output. High heat is not controlled by thermostat.

- If humidity inside van is between 70% and 80% set air conditioner unit 1 to LO HEAT.

6. Monitor inside humidity. When it falls back to nominal range, set FAN switch to LO and air conditioner unit 1 to COOL.

2-106. OPERATION IN DUST OR SAND STORMS

The system will operate with the van exposed to fine dust or sand particles with wind speeds up to 17 knots outside the van. All air conditioner fresh air vents must be closed and the chain secured during the storm.

The temperature control system has been designed to pick up air from inside the van, condition it, and recirculate it back inside the van.

Monitor the temperature and humidity carefully and ventilate the van as soon as the weather permits.

2-107. FORDING

When the system is properly prepared for travel, it may be hauled or driven through fresh or salt water up to a depth of 5 feet. The depth of water includes any wave height. The van may be forded at a speed of not less than 1 mph nor more than 2 mph for a period of 15 minutes, with no seepage inside.

2-108. EMERGENCY PROCEDURES

Under some conditions you must operate the system using procedures that differ from usual operation. These conditions are described in the following paragraphs.

2-109. POWER FAILURE

In the event of a temporary power failure the emergency lights will go on inside the van. Follow these steps in the event of a power outage:

1. Set frequency converter to OFF if it was in use.
2. Set circuit breakers to OFF in utility power box and inside lights to OFF.
3. Set circuit breakers to OFF in technical power box.
4. Power tape drives OFF at each cabinet.
5. Set PDU circuit breaker under the tape drives to OFF.
6. Set CPU POWER switch on control panel to OFF. Leave PANEL SECURITY key in locked position.
7. Pull CPU away from wall.

8. Open CPU door and set PDU switch to OFF. DO NOT TURN OFF MEMORY SAVE or REAL TIME CLOCK.

9. Close CPU door and push CPU back against wall.

10. Set all ADP devices except disk drives to OFF at their individual power sources.

11. Push START buttons on all disk drives that were in use.

12. Set humidifer to OFF and all air conditioners to OFF.

13. If power is out for two hours or more, repeat steps 7 and 8 and turn off Real Time Clock and MEMORY SAVE.

14. When power is restored, restart system after power failure (para 2-71).

2-110. AIR CONDITIONER UNIT REMOVED FOR MAINTENANCE

If a replacement air conditioner unit is not available, a plate must be installed over the opening. Plates are stored in a rack between the frequency converter and the vestibule wall.

2-111. HUMIDIFIER FAILS OR DISTILLED WATER NOT AVAILABLE

If the humidifier fails, or if distilled water is not available you can maintain required humidity by soaking cloths or towels with water and hanging them in the storage area away from equipment. The evaporation which results will raise the relative humidity. You can also roll up newspapers and leave them soaking in buckets of water. Always monitor the hygrometer to make sure the humidity is high enough for ADP operation.

2-112. FREQUENCY CONVERTER FAILURE

If the frequency converter fails, you can continue to operate the system in BYPASS mode using the generator control panel:

CAUTION

> This procedure can cause equipment damage if not followed carefully. It is an emergency procedure and should never be used for usual operation.

a. On generator control panel set AMP VOLT dial to L1.

b. Adjust manual speed control until HERTZ gauge reads 60 Hz.

c. Turn VOLTAGE ADJUST dial until VOLTS AC guage reads 120.

d. At van set BYPASS switch to BYPASS.

e. Power ON van.

f. Apply technical power.

g. Start up ADP subsystem.

h. Check VOLTAGE meter on CONTROL BOX every 15 minutes. If voltage changes by ± 5 volts, repeat steps b and c to readjust voltage output of generator unit.

CHAPTER 3
MAINTENANCE INSTRUCTIONS

Index of Maintenance Procedures

Paragraph No.	Procedure Title	Page No.
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3-10	Run System Exerciser in Simulator Mode	3-29
3-12	Clean Frequency Converter and Remove/Replace Air Filter	3-34
3-13	Fill Humidifier Pump Tank	3-36
3-14	Test/Replace Smoke Detector Batteries	3-37
3-15	Remove/Replace Magnetic Tape BOT and EOT Markers	3-39
3-16	Remove/Replace Panel Clock Battery	3-40
3-17	Install Console Printer Paper Rack	3-42
3-18	Install/Remove Paper in Console Printer	3-43
3-19	Install Ribbon in Console Printer	3-46
3-20	Change Console Printer Baud Rate	3-48
3-21	Change Console Printer Strap Options	3-49
3-22	Set Up Console Printer for Forms/Margins	3-54
3-23	Run Extended QLT	3-58

Section I. LUBRICATION INSTRUCTIONS

3-1. LUBRICATION

3-2. ADP SUBSYSTEM

Does not require lubrication.

3-3. AC POWER SUBSYSTEM

Does not require lubrication. See TM 5-6115-545-12 for power plant lubrication instructions.

3-4. COMMUNICATION SUBSYSTEM

Does not require lubrication.

3-5. ENVIRONMENTAL SUBSYSTEM

See TM 5-4120-308-15 for air conditioner lubrication instructions. No other environmental equipment requires lubrication.

3-6. VAN UNIT

See TM 9-2330-362-14&P for lubrication instructions.

Section II. TROUBLESHOOTING PROCEDURES

3-7. GENERAL

The troubleshooting procedures for this system are divided by subsystem. The van and the five subsystems each have malfunctions listed under their respective heading in table 3-1. However, troubleshooting of the ADP subsystem involves both malfunction analysis (table 3-1) and use of a software program designed to test and exercise the ADP equipment (para 3-8). Whenever an ADP malfunction occurs during operation go to table 3-1. Whenever you suspect system degradation or want to test the system before start of your mission use the system exerciser.

Table 3-1 lists the common malfunctions which you may find during the operation or maintenance of the DAS3 (D/C). You should perform the tests/inspections and corrective actions in the order listed.

This manual cannot list all malfunctions that may occur nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, tell your supervisor.

Table 3-1. Troubleshooting

MALFUNCTION
    TEST OR INSPECTION
        CORRECTIVE ACTION

VAN UNIT

REAR OR CURBSIDE DOOR WON'T OPEN OR STICKS.

Step 1. Check that van is level.

Level van.

Step 2. Check door handle for faulty operation.

Tell your supervisor maintenance is required.

AC POWER SUBSYSTEM

1. POWER ENTRANCE PANEL INDICATORS NOT LIT.

Step 1. Check van power cable connections.

Make sure all connectors are attached and tight.

Step 2. Check that power cables are connected to power source.

If using power plant, connect cables and start generator. If using commercial power, tell your supervisor maintenance is required.

Table 3-1. Troubleshooting -- Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

AC POWER SUBSYSTEM (CONT)

Step 3. Check circuit breakers are set to ON and ensure that power source is ON.

If using power plant, verify that generator is on and running. If using commercial power, tell your supervisor.

Step 4. Check that van power cables are connected to adapter cable.

Connect adapter cable to power cable.

Step 5. Check for damaged van power cables.

Tell your supervisor maintenance is required

Step 6. Check that generator switchbox is ON.

Open cover and set circuit breakers ON.

2. POWER CONTROL BOX HORN SOUNDS AND FAULT INDICATOR LIGHTS.

Step 1. Check that generator has proper output.

Set operating controls. If still no output, tell your supervisor, and switch over to second generator.

3. POWER ARRESTOR INDICATORS LIT BUT NO POWER TO SYSTEM.

Step 1. Check that circuit breakers 60 and 100 in power distribution box are ON.

Set circuit breakers ON.

Step 2. Check that each phase shows 120 V ±10% on voltmeter at power control box.

Tell your supervisor maintenance is required.

Step 3. Check that circuit breakers 30 and 40 in power distribution box are ON.

Set circuit breaker ON.

Table 3-1. Troubleshooting -- Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

AC POWER SUBSYSTEM (CONT)

4. NO AIR CONDITIONING, BUT VAN POWER IS ON.

Step 1. Check that circuit breakers 1, 2, 3, and 4 in power distribution box are ON.

Set circuit breakers ON.

Step 2. Check that temperature control panel switches are not in OFF position.

Set switches to correct operating position.

5. AIR CONDITIONERS HAVE POWER BUT UTILITY POWER IS OFF.

Step 1. Check that circuit breaker 30 in power distribution box is ON.

Set circuit breaker ON.

6. NO POWER TO LIGHTS OR TO EQUIPMENT PLUGGED INTO UTILITY POWER OUTLETS.

Step 1. Check circuit breakers in utility power distribution box.

Reset circuit breaker.

7. NO TECHNICAL POWER.

Step 1. Check that bypass switch is not OFF.

Set to BYPASS ON position or to FREQUENCY CONVERTER ON position as required.

Step 2. Check that frequency converter is ON.

Set circuit breaker ON.

Step 3. Check that frequency converter door is closed and tightened.

Tell your supervisor maintenance is required.

Step 4. Check that frequency converter overtemperature indicator is not ON.

Tell your supervisor maintenance is required.

Step 5. Check that frequency converter blowers are running.

Tell your supervisor maintenance is required.

Table 3-1. Troubleshooting -- Continued

MALFUNCTION
    TEST OR INSPECTION
        CORRECTIVE ACTION

AC POWER SUBSYSTEM (CONT)

Step 6. Check that frequency converter overcurrent indicator is not ON.

Press RESET button. If indicator stays on, tell your supervisor.

Step 7. Look through window to check indicators on power modules. All indicators should be lit.

If any indicators are out or dimmer than the rest, tell your supervisor maintenance is required.

8. NO POWER TO AN ADP DEVICE.

Step 1. Check that device circuit breaker in tech power box is ON.

Reset circuit breaker.

Step 2. Check device power ON/OFF switch.

Set power ON.

ENVIRONMENTAL SUBSYSTEM

1. HUMIDIFIER DOES NOT COME ON.

Step 1. Check that humidifier is plugged into proper outlet.

Plug humidifier into correct outlet.

Step 2. Check that power switch on humidity control panel is not OFF.

Set switch to ON.

Step 3. Check that all air conditioners are not OFF.

Set any air conditioner to any position other than OFF.

2. PORTABLE HEATER DOES NOT OPERATE.

Step 1. Check that it is plugged into proper outlet.

Plug heater into proper outlet.

Step 2. Check that proper circuit breaker is ON.

Set circuit breaker ON.

Step 3. Check that switch is not in OFF position.

Set switch to HEAT or FAN.

Table 3-1. Troubleshooting -- Continued

MALFUNCTION
    TEST OR INSPECTION
        CORRECTIVE ACTION

ENVIRONMENTAL SUBSYSTEM (CONT)

Step 4. Check that temperature control is set to proper temperature.

Set dial to desired temperature.

3. TEMPERATURE IN THE VAN TOO HIGH OR TOO LOW.

Step 1. Check settings at temperature control panel.

Make proper adjustments.

Step 2. Check that air is passing freely and that filters are not clogged.

Tell your supervisor maintenance is required.

4. HUMIDITY TOO HIGH OR TOO LOW.

Step 1. Check that humidistat is set properly.

Set humidistat dial.

Step 2. Check that there is water in humidifier pump tank.

Fill tank with distilled water.

Step 3. Set humidistat to highest reading. Does humidifier come on now?

If not, check circuit breaker 8 in utility power box. Reset if necessary.

Step 4. Check that all air conditioners are not OFF.

Set at least one air conditioner to a suitable position other than OFF.

Step 5. Check that hygrometer is operating properly.

Tell your supervisor maintenance is required.

ADP SUBSYSTEM

1. A PERIPHERAL DEVICE WILL NOT POWER ON.

Step 1. Check that device is plugged into proper outlet.

Plug device into technical power outlet.

Table 3-1. Troubleshooting -- Continued

MALFUNCTION
    TEST OR INSPECTION
        CORRECTIVE ACTION

ADP SUBSYSTEM (CONT)

Step 2. Check that PDU circuit breaker is ON.

Close PDU circuit breaker (if applicable).

Step 3. Check that local device power switch is ON.

Set switch in ON position.

Step 4. Check device circuit breaker in tech power box.

Close circuit breaker. If still no power, tell your supervisor maintenance is required.

2. ERROR MESSAGE AT CONSOLE TERMINAL.

Step 1. Check error message text and follow procedures (para 2-70).

If software application detects possible hardware fault, inform your supervisor.

Step 2. If software error is indicated, retry the program or call up HELP menu. If fault persists, tell your supervisor.

3. LINE PRINTER MOTOR RUNNING BUT NOT PRINTING PROPERLY.

Step 1. Check that paper is loaded and feeding properly.

Set up and aline paper.

Step 2. Check that line printer paperfeed lever is in proper position and there is no slack in paper.

Place lever in RUN and allow paper puller to take up slack.

Step 3. If problem persists.

Tell your supervisor.

4. CONSOLE PRINTER OPERATING BUT NOT PRINTING PROPERLY.

Step 1. Check ribbon cartridge.

Replace ribbon cartridge if necessary.

Table 3-1. Troubleshooting -- Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

ADP SUBSYSTEM (CONT)

Step 2. Check paper thickness setting.

Set for correct paper thickness.

Step 3. Check run/load lever position.

Set lever in run position.

5. CARD READER/PUNCH NOT FEEDING CARDS PROPERLY ON LINE

Step 1. Check panel indicators for P-CK or R-CK.

If either is lit go to step 2.

Step 2. Check mechanical assembly for jammed card.

CAUTION

Do not attempt to free card jammed in punch station. Tell your supervisor maintenance is required.

Remove jammed card if not located in punch station. If you can't, tell your supervisor.

Step 3. Check to see if hoppers are empty or stackers are full.

Fill the hoppers or empty the stackers.

6. DISK DRIVE UNIT NOT OPERATING PROPERLY.

Step 1. Check if tech power circuit breakers have opened.

Close breaker and try to cycle up. If breaker opens, tell your supervisor maintenance is required.

Step 2. Check that cover interlock switch is engaged to enable power to spin drive.

Close disk drive cover or push down on switch.

Step 3. Check if spindle motor makes noise or will not turn on.

Do not use unit. Tell your supervisor.

Table 3-1. Troubleshooting -- Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

ADP SUBSYSTEM (CONT)

Step 4. Check your CHECK indicator.

Push CHECK button to see if unit resets and READY indicator comes on. If CHECK indicator is still lit, tell your supervisor maintenance is required.

7. TAPE DRIVE UNIT NOT OPERATING PROPERLY.

Step 1. Check to see if PDU circuit breaker has opened.

Close breaker and try to run tape. If breaker opens, tell your supervisor maintenance is required.

Step 2. Check heads, guides, and capstan for dust or oxide buildup.

Clean tape heads, guides and capstan.

Step 3. Check that tape reel is not damaged, bent, or warped.

Replace tape reel if necessary.

COMMUNICATIONS SUBSYSTEM

1. UNABLE TO SEND OR RECEIVE DATA

Step 1. Check that all disk packs needed to operate are properly configured and cycled up.

Remount disk packs and cycle up.

Step 2. Check if power indicators on modems or converters are out or blinking.

Set power ON/OFF to switch ON. Set PDU circuit breaker ON. If the problem still persists, tell your supervisor maintenance is required.

Step 3. Check if binding post/connector switch on desired signal path is properly set.

Correct switch setting as required.

Table 3-1. Troubleshooting -- Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

COMMUNICATIONS SUBSYSTEM (CONT)

Step 4. Check function lights on modem or converter assemblies.

If proper light sequence is not indicated, tell your supervisor maintenance is required.

Step 5. Check files being accessed for any access/transmission restrictions.

If files are restricted tell your supervisor.

Step 6. Check that DAA observation port for telephone pair 25 is not lit.

If the DAA observation port is lit, tell your supervisor maintenance is required.

2. UNABLE TO EXCHANGE DATA BETWEEN DAS3 (D/C) SYSTEMS THROUGH A CABINET

Step 1. Check that both systems have configured disk packs mounted and cycled up.

Confirm that disk packs are properly configured, mounted and cycled up.

Step 2. Ensure that both DAS3 (D/C) operators have enabled the communications link at the console terminals (para 2-56, steps 8 and 9). Check status of system and correct node ID of the DAS3 (D/C) being accessed. Reboot your system if necessary.

Step 3. Check that cabinet A number 2 selector switch is properly set for either MODEM or converter.

Set switch in correct position.

Step 4. Check that patch cord runs from DTE connector in grey module to DCE connector in black module.

Plug in patch cord; ensure connection is good.

Step 5. Check that crossover switch is set to NORMAL.

Set crossover switch to NORMAL.

Step 6. Check that V.29 modem 2 baud rate indicator is displaying proper rate.

Set data rate thumbwheel selector to position 3.

Table 3-1. Troubleshooting -- Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

COMMUNICATIONS SUBSYSTEM (CONT)

Step 7. Run MDM CHK on V.29 modem 2.

Press MDM CHK then DATA CLAMP switches. TEST and GOOD DATA indicators should light. If not, tell your supervisor.

Step 8. Check that wires to signal entrance panel A channel 2 are connected to binding posts 3 and 4.

Connect pair 3A and 3B for TRANSMIT, and pair 4A and 4B for RECEIVE.

Step 9. Check that signal entrance panel A channel 2 switch is set to BINDING POST position.

Set switch.

Step 10. Check that LED indicators on V.29 modem number 2 indicate DCD/DSR. Indicators should be lit.

If not, tell your supervisor.

Step 11. Use crossover procedure to keep transmission going.

Set crossover switch to crossover, patch DTE from AUTODIN to DCE of patch 2 to complete crossover procedure.

NOTE

Procedure can be reversed to use V.29 modem number 2 as a backup to the AUTODIN modem.

Step 12. Confirm that other DAS3 (D/C) operator has correct baud rate, modem setup, and is ready to transmit/receive.

Have other operator reset devices/switches as appropriate.

Step 13. Check files being accessed for any transmission/access restrictions.

If files are restricted, tell your supervisor.

Table 3-1. Troubleshooting -- Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

COMMUNICATIONS SUBSYSTEM (CONT)

Step 15. Check the autocall phone line by direct dial to the other DAS3 (D/C) van.

If unable to contact the other DAS3 (D/C), tell your supervisor.

3. UNABLE TO EXCHANGE DATA BETWEEN DAS3 (D/C) SYSTEMS THROUGH B CABINET

Step 1. Ensure you are addressing the correct node number.

Enter proper node number.

Step 2. Check that both systems have configured disk packs mounted and cycled up.

Confirm that disk packs are properly configured, mounted and cycled up.

Step 3. Check with system administrator to ensure CLM user file and CONFIG files were reconfigured and baud rates on RNP software was changed.

Have system administrator reconfigure files and software.

Step 4. Ensure RM-201B modem board is in slot 13 of quasi-analog modem assembly.

Check modem board in slot 13.

Step 5. Check that telephone pairs 25 and 26 are in binding post position at signal entrance panel.

Set switches to binding post position.

Step 6. Check that wires at outside signal entrance panel are connected to pair 25 (transmit) and to pair 26 (receive) if you are host van.

Connect wires to binding posts on pairs 25 and 26.

Reverse wires if you are not host van.

Step 7. Check files being accessed for any transmission access restrictions.

If files are restricted, tell your supervisor.

Table 3-1. Troubleshooting -- Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

COMMUNICATIONS SUBSYSTEM (CONT)

4. UNABLE TO EXCHANGE DATA WITH IBM REMOTE PROCESSOR

Step 1. Check that telephone is connected to binding posts 1 and 2 (pair 25) on B cabinet.

Connect telephone.

Step 2. Ensure TWO WIRE/FOUR WIRE switch is in two-wire position.

Set TWO WIRE/FOUR WIRE switch to two wire position.

Step 3. Ensure pair 25 toggle switch is set to either BINDING POST or CONNECTOR as appropriate.

Set BINDING POST/CONNECTOR switch.

Step 4. Check that patch cord is in the DTE of the 2780/3780 patch and that it is connected to the DCE of line 1 in the B Cabinet.

Connect path cord.

Step 5. Check that VOICE button on the VOICE/DATA buttons is pressed during initial call.

Press VOICE button.

Step 6. Check phone number of the IBM computer you are calling.

Check with your supervisor.

Step 7. Recheck the TRANB commands you are using and file PATHNAMES.

Reenter TRANB commands.

5. UNABLE TO EXCHANGE DATA WITH REMOTE SUBSYSTEM

Step 1. Check that disk packs necessary to operate are configured and cycled up.

Configure disk packs and cycle up.

Step 2. Check that signal entrance panel B toggle switches are set to

BINDING POST/CONNECTION for channels being accessed.

Set switches.

Table 3-1. Troubleshooting -- Continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

COMMUNICATIONS SUBSYSTEM (CONT)

Step 3. Check that CONVERTER/MODEM switches in cabinet B are set correctly by communicating with the remote subsystem operator to make an agreement for both of you to use either the modem or the converter.

Set switches.

Step 4. Check that patch cords are not connected to remote channel patch modules being accessed.

Remove patch cords from remote channel patch modules.

Step 5. Check that cabinet B circuit breaker is set to ON.

Set circuit breaker ON in communication Power Box.

Step 6. Check that POWER and RLSD indicators on quasi analog modem assembly panel are lit.

Set power switches to ON position.

Step 7. Check that CLEAR TO SEND indicators are lit for channels being accessed through quasi-analog modem assembly.

If not, tell your supervisor.

Step 8. Check that LED indicator for each channel being accessed in the 600GR Converter assembly is lit.

If not, tell your supervisor.

Step 9. Check that transmission lines to outside signal entrance panel B are properly connected to channels being accessed.

Connect lines properly or tell your supervisor maintenance is required.

Step 10. Check files being accessed for any transmission/access restrictions.

If files are restricted, tell your supervisor.

Step 11. Confirm that remote subsystem devices are on line.

Send test message.

3-8. SYSTEM EXERCISER

The System Exerciser is a program designed to test and exercise the DAS3 (D/C) system peripherals and their related software support modules. It runs as an applications program under GCOS-6 MOD 400 operating system as a stand-alone application or it may run concurrently with other applications under the GCOS-6 executive.

This permits verification of the correct operation of the system without interfering with the on-line operation. As long as the operating system isn't accessing a peripheral device, the exerciser can test that device and still perform its on-line tasks at the same time.

The System Exerciser program may be loaded and executed with minimum knowledge of the GCOS operating system. It configures itself to the system configuration in which it is executed. This feature allows the exerciser to run on systems of different peripheral configurations without altering the software.

The command structure (table 3-2) shows you the options you have to run tests on all configured devices, or to begin or stop individual test sequences on demand. In addition, commands may be entered to determine the status of the tests in progress, perform simulation tests, and all automatic restart of test passes. Table 3-3 is a summary of messages the operator may receive from the exerciser program.

The System Exerciser relocates itself within the task group memory pool at the completion of each test pass. This feature allows the test to execute from all memory assigned to the task group in which it is executing.

The DAS3 (D/C) exerciser program resides on the system disk pack. There are three different modes for checking performance:

- TIME
- RECORDS
- SIMULATE

All perform the same tests. The difference is that when TIME is selected, the tests run for the period of time entered by the operator; with RECORDS, the tests run from the number of records entered by the operator. In both modes a built-in rotating pattern of characters is the output unless the operator selects a set output character for testing purposes. For example, the letter H may be dropping out or printing too light on some forms. To determine if this is a line printer problem the operator can command the exerciser to output only the letter H for all test patterns run on the line printer (CHARACTER LPT00 'H'). In the SIMULATE mode, an 8-hour simulation of the system duty cycle is run, during which data is written to and read from the peripheral devices and 4000 cards are punched and read.

Table 3-2. System Exerciser Commands

COMMAND	ACTION
HELP	Output operating instructions
TIME	Set system mode to time
RECORDS	Set system mode to records
CHARACTER device name or ALL 'X'	Set output character for test
RUN device name or ALL	Run a device test
SIMULATE	Begin application simulation
SIMSTOP	Stop application simulation
STOP device name	Stop a device test
STATUS device name	Output device test status
REPORT	Output device report
AUTO	Auto restart test at end-of-pass
TERMINATE	Terminate the system exerciser program
RESTART	Reinitialize the system exerciser
BYPASS	Bypass a test on reserve error

Table 3-3. Typical Messages to the Operator from Exerciser

MESSAGE	MEANING
ENTER COMMAND (RECORDS) or ENTER COMMAND (TIME)	This message signifies that the system exerciser program will accept the next command input by the operator. The word within the parentheses indicates whether the system is in records or time (limit for tests) mode.
INVALID DEVICE OR UNRECOGNIZED COMMAND	The command entered was not a legal system exerciser command or the device specified in the option parameter was not a legal device name. Reenter the command.
THIS PROGRAM ALLOWS YOU TO TEST AND EXERCISE ANY OR ALL OF THE DAS3 (D/C) SYSTEM PERIPHERALS . . . . . LIST OF DEVICE NAMES	This message informs you of all the devices which can be tested on your configuration. If a device is not listed which is capable of being tested, it probably was not included in the CLM (configuration load manager) file at system startup.
ERROR RESERVING DEVICE XXXXXX -- DEVICE TEST BYPASSED	The device XXXXXX could not be reserved by the system exerciser. This message means that the device is reserved by some other program on the system. The device test requested is not started if this error occurs. To correct the problem, wait until the device is free and re-request the device test by using the "START device" command.
FATAL ERROR ENCOUNTERED - XORSIZ ABORTED	The System Exerciser received an error return from the GCOS executive for which there is no recovery. The error encountered is output in system error format. The exercise test is terminated.
END OF PASS XXXX TEST COMPLETED IN MEMORY LOCATIONS AAAA-BBBB TEST MOVED TO MEMORY LOCATIONS CCCC-DDDD	All requested tests have completed at least one pass and thus an end of test pass was completed. XXXX = The test pass number. The current test was running in virtual memory location AAAA-BBBB (HEX) and next pass will execute in memory locations CCCC-DDDD (HEX).

Table 3-3. Typical Messages to the Operator from Exerciser -- Continued

MESSAGE	MEANING
DATA COMPARE ERROR S.B. XXXX WAS YYYY	Data compare error occurred on the verification pass for the device specified. S.B. = Hex value data should have been WDS = Hex value data was.
SUBTEST ERROR REPORTING	Errors detected by the test modules and reported to the operator are in the following format: [MOD 400 operating system-provided error message] - followed by: TIME DEVICE ------TEST ABORTED------ Where: TIME = Current time DEVICE = Device name of erring device

a. Mass Store Test. The mass store test creates a file on the disk and writes and verifies a worst case data pattern throughout the file. The test is completed when no more data records are available on the disk. Each disk pack mounted on the device for testing must have a volume label. The test file created by the System Exerciser is VOLID DSKFIL. Read/write data access must be available to the system exerciser in the directory immediately interior to the volume ID.

b. Magnetic Tape Test. The magnetic tape test writes and verifies a worst case data pattern from beginning of tape to end of tape. In addition, the tape tests a limited set of tape positioning functions. The magnetic tapes must be enabled for write access (write-permit ring must be installed). All data previously contained on the tape is destroyed. This includes the volume label.

c. Console Printer Test. This test prints a 95 character ASCII rotating pattern to the console printer. In addition, the date, time and pass number are output at the beginning and end of this test pass. Make sure the printer is ready and has an adequate supply of paper before start of test.

d. Line Printer Test. The line printer test prints a 95 character ASCII rotating pattern to the line printer. In addition, the printer test performs a limited set of line spacing functions. The date, time and pass number are output at the beginning and end of the test pass. Make sure the printer is ready and has an adequate supply of paper before start of test.

e. Keyboard-display Terminal Test. The keyboard-display terminal test outputs a 95 character ASCII rotating pattern to the displays. In addition, the date, time and pass number are output to the display terminal at the beginning and end of each pass. Each terminal tested must be powered on and in a ready state prior to testing.

f. Card Punch Test. The card punch test punches a rotating 96 character ASCII pattern to cards. The card punch being tested must be ready and have an adequate supply of blank cards in the input hopper.

g. Simulation Tests. The tests scheduled as a part of the Application Simulator are basically the same ones available under the System Exerciser proper. The major difference is that under the exerciser proper, one test deals with only one device. Under the Simulator, each test deals with all devices of a given type (all terminals, disk drives etc.). The following requirements apply to all portions of the simulation:

- The simulation cycle processes for 8 hours
- The cycle uses an 80 character record length containing varying printable ASCII characters as data, except where otherwise noted

(1) Disk Simulation. The cycle uses six disk drives. One disk drive contains the executive software, and will not be exercised. THe remaining five are exercised. Disk activity processes in the following sequence:

(a) Writes records simultaneously to fill five disk packs.

(b) Reads records simultaneously that were previously written.

(c) Performs the above sequence for eight hours.

(2) Tape Simulation. The cycle utilizes two tape drives. Tape activity processes the following sequence:

(a) Writes records to tape drives simultaneously until both reels are filled with data.

(b) Reads records from both tape drives simultaneously.

(c) Reads from tape to tape.

(d) Performs the above tape sequence for eight hours.

(3) Card Reader/Punch Simulation. Card reader/punch activity processes in the following sequence.

(a) At the start of the cycle, punches 4000 records.

(b) After the punch activity, reads the 4000 cards produced.

(c) Performs this operation again in the fifth hour of the simulation.

(4) CPU Memory Simulation. Reserves 150 kb of memory to simulate bound unit (object code) core residence.

(5) Printer Simulation. The line printer writes 132 length lines for a total duration of four hours. The printing is done in hours 1, 2, 4 and 7. There is no utilization of the printer in hours 3, 5, 6 and 8.

(6) Terminal Simulation. The System Exerciser writes to all internal and external terminals (80 character records) and console printers (132 character records) for a duration of three hours. All keyboard-display units and remote printers, excluding the operator's console, receive data in hours 1, 2 and 8. There is no utilization of these devices in hours 3, 4, 5, 6 and 7.

The System Exerciser prints the Simulation Report on the console printer at the operator's request or at the end of the cycle (8 hours).

NOTE

When the stop or terminate commands are issued there may be up to a 10 minute delay for each test being stopped. This delay is due to the GCOS-6 time delays built into the connect/read/write logic and cannot be controlled by the exerciser program. Don't panic if the long delay occurs.

Cards may be removed from the card punch stacker and placed in the card reader input hopper for verification at any time.

All disk drive devices must have a volume label before the device can be tested. A volume label may be placed on a disk using the create volume system command.

No pre-existing data or directories on the disk pack will be destroyed by the system exerciser.

Paragraph 3-9 gives instructions for running and a sample printout from the exercises in the RECORDS Mode. Paragraph 3-10 provides the same information for the SIMULATE mode.

System Exerciser remains in memory during the duty cycle and can be rerun anytime it is needed as a fault isolation tool. During fault isolation, you can run the device or devices you wish. Run the exerciser anytime you suspect the system is being degraded and the fault is not known. Otherwise, run it once a week and anytime the van is moved to a new site.

3-9. RUN SYSTEM EXERCISER IN RECORDS MODE

INITIAL SETUP

Test, Measurement and Diagnostic Equipment	Materials/Spare Parts	Supplies
• System pack	• Pencil	• Scratch packs (5 ea) • Scratch tapes (2 ea) • Punch cards

NOTE

Make sure ADP subsystem is started up and running before you run the system exerciser. See paragraph 2-46 for startup instructions.

1. Load scratch disk packs on drives 0480, 0500, 0600, 0680, and 0700 drives.

NOTE

Make sure PROTECT indicator is not lit. Disk packs must run unprotected.

2. Cycle up drives.

NOTE

Make sure scratch tapes have write permit rings installed.

3. Load scratch tape on each tape drive.
4. Load supply of blank cards in card reader/punch secondary hopper. Load one blank card in the primary hopper. On the operator panel, press STOP/RESET twice. Press START. The green READY indicator comes on. On the controller panel, press START.
5. If system is already booted, go to step 6.
   - If system is not booted, run QLT and then boot the system (para 2-53, steps 2 thru 5).

3-9. RUN SYSTEM EXERCISER IN RECORDS MODE (CONT)

NOTE

When you see Δ in entry instructions, press the space bar on the console terminal.

⑥

```
SET_LISTEN * -OFF
```

6. Type SET_LISTEN Δ * Δ -OFF (C/R).
7. On both I/O terminals type BYE (C/R).

⑧ ⑨

```
TIME
($S) 1984/03/08 0004:57.933
```

8. Type TIME. (C/R).
9. At console terminal, verify today's time and date, if not correct change them. Enter today's date. Use this formula: SD Δ 'four digit year/two digit month/two digit date four digit time' (C/R).

⑩ ⑪ ⑫

```
 C :$H:
RDN
($H)RDY:
XORSIZ
($H) TEST RUNNING IN MEMORY LOCATIONS
($H)  54A5E THRU  557EC
($H) DAS_3 SYSTEM EXERCISER REV 005  08/16/82
($H)
($H)
```

10. Type Δ C Δ :$H: (C/R).
11. Type RDN (C/R).
12. Type XORSIZ (C/R).

⑬

```
($H)
($H)ENTER TEXT:
```

13. Check console. System responds with message ending in ($H) ENTER TEXT.

3-9. RUN SYSTEM EXERCISER IN RECORDS MODE (CONT)

```
     ($H)
⑭   ($H) ENTER TEXT:
     OPERATOR NAME AND DATE ON THIS LINE
⑮   ($H)ENTER COMMAND (TIME):
     RECORDS
     ($H)ENTER COMMAND (RECORDS):
     RUN KVDT00
     ($H)ENTER COMMAND (RECORDS):
⑯   ($H) ___________________________
     ($H) END OF PASS      0001
     ($H) ___________________________
     ($H) DATE/TIME = 1984/03/08 0006:23.183
     ($H) PASS ELAPSED TIME =   00 HOURS  00 MINUTES  31 SECONDS
     ($H) TEST COMPLETED IN MEMORY LOCATIONS
     ($H)  54A5E THRU  557EC
     ($H) TEST  MOVED   TO MEMORY LOCATIONS
     ($H)  58763 THRU  594F1
⑰   ($H) ENTER "CONTINUE"  "TERMINATE" OR  "RESTART"
     RESTART
     ($H) TEST RUNNING IN MEMORY LOCATIONS
     ($H)  54A5E THRU  557EC
```

14. Enter: your name Δ today's date (C/R)

    - System will address report to you and respond: ($H) ENTER COMMAND (TIME)

15. Enter: RECORDS

    - System responds ($H) ENTER COMMAND (RECORDS)

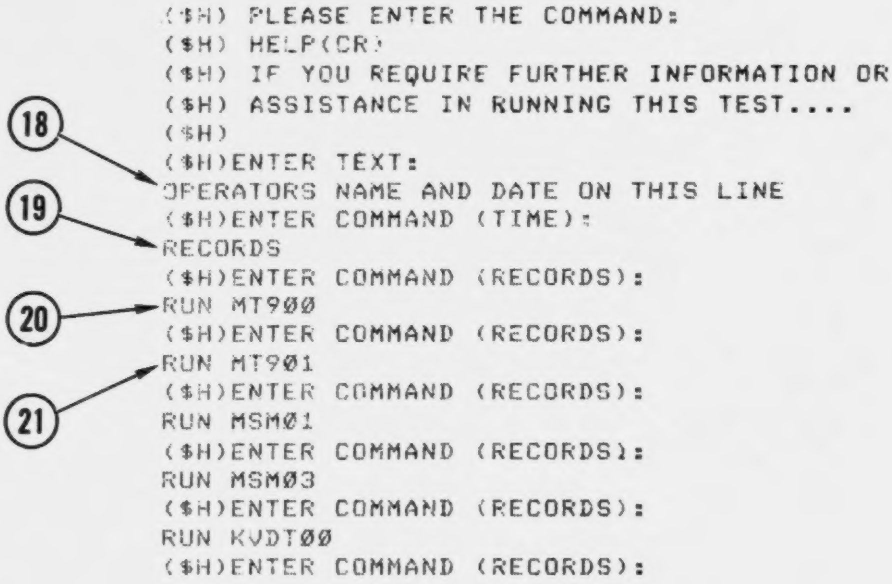
16. Enter: RUN and device to be tested

    - System responds ($H) ENTER COMMAND (RECORDS)

17. Enter: RESTART

    - Testing restarts, when pass is complete system responds ($H) ENTER TEXT:

3-9. RUN SYSTEM EXERCISER IN RECORDS MODE (CONT)



```
($H) PLEASE ENTER THE COMMAND:
($H) HELP(CR)
($H) IF YOU REQUIRE FURTHER INFORMATION OR
($H) ASSISTANCE IN RUNNING THIS TEST....
($H)
($H)ENTER TEXT:
OPERATORS NAME AND DATE ON THIS LINE
($H)ENTER COMMAND (TIME):
RECORDS
($H)ENTER COMMAND (RECORDS):
RUN MT900
($H)ENTER COMMAND (RECORDS):
RUN MT901
($H)ENTER COMMAND (RECORDS):
RUN MSM01
($H)ENTER COMMAND (RECORDS):
RUN MSM03
($H)ENTER COMMAND (RECORDS):
RUN KVDT00
($H)ENTER COMMAND (RECORDS):
```

18. Enter your name and today's date (C/R)
    - System responds: ($H) ENTER COMMAND (TIME) (C/R)
19. Enter: RECORDS (C/R)
    - System responds ($H) ENTER COMMAND (RECORDS)
20. Enter: Run device name to be tested
    - System responds ($H) ENTER COMMAND (RECORDS)
21. Enter: Run device name to be tested
    - System responds ($H) ENTER COMMAND (RECORDS)

3-9. RUN SYSTEM EXERCISER IN RECORDS MODE (CONT)

```
STATUS ←㉒
($H) DATE/TIME = 1984/05/08 0010:09.883
($H) PASS ELAPSED TIME =    00 HOURS  02 MINUTES  31 SECONDS
($H) TEST RUNNING IN MEMORY LOCATIONS
($H)  54A5E THRU  557EC
($H)   MSM30  P=0000 R=0100 T=100
($H)   MSM01  P=0001 R=0100 T=100   REQUESTED
($H)   MSM02  P=0000 R=0100 T=100
($H)   MSM03  P=0001 R=0100 T=100   REQUESTED
($H)   MSM04  P=0000 R=0100 T=100
($H)   MSM05  P=0000 R=0100 T=100
($H)   MT900  P=0001 R=0100 T=100   REQUESTED
($H)   MT901  P=0001 R=0100 T=100   REQUESTED
($H)   KVDT00 P=0002 R=0100 T=100   REQUESTED
($H)   KVDT01 P=0000 R=0100 T=100
($H)   KVDT02 P=0000 R=0100 T=100
($H)   KVDT03 P=0000 R=0100 T=100
($H)   KVDT04 P=0000 R=0100 T=100
($H)   KVDT05 P=0000 R=0100 T=100
($H)   KVDT06 P=0000 R=0100 T=100
($H)   KVDT07 P=0000 R=0100 T=100
($H)   KVDT08 P=0000 R=0100 T=100
($H)   KVDT09 P=0000 R=0100 T=100
($H)   KVDT10 P=0000 R=0100 T=100
($H)   LPT00  P=0000 R=0100 T=100
($H)   PRT00  P=0000 R=0100 T=100
($H)   PRT01  P=0000 R=0100 T=100
($H)   PRT02  P=0000 R=0100 T=100
($H)   CRP00  P=0001 R=0100 T=100   REQUESTED
($H)   CDR00  P=0000 R=0100 T=100
($H)ENTER COMMAND (RECORDS):
```

NOTE

These are the three STATUS conditions. Look them over carefully.

RUNNING = Test is currently running.

Each time the system exerciser runs a test on a device, it's called a pass. The second column tells you the number of test passes completed.

RAN-ONCE = Test pass is complete. Even if there are many test passes, after each pass is complete the STATUS report will say RAN-ONCE.

ON-CLOCK = Test is waiting to run again.

22. Type STATUS (C/R).

23. Check status report for pass.

3-9. RUN SYSTEM EXERCISER IN RECORDS MODE (CONT)

```
($H)    KVDT00 P=0001 R=0100 T=100    REQUESTED    RAN-ONCE
($H)    KVDT01 P=0000 R=0100 T=100
($H)    KVDT02 P=0000 R=0100 T=100
($H)    KVDT03 P=0000 R=0100 T=100
($H)    KVDT04 P=0000 R=0100 T=100
($H)    KVDT05 P=0000 R=0100 T=100
($H)    KVDT06 P=0000 R=0100 T=100
($H)    KVDT07 P=0000 R=0100 T=100
($H)    KVDT08 P=0000 R=0100 T=100
($H)    KVDT09 P=0000 R=0100 T=100
($H)    KVDT10 P=0000 R=0100 T=100
($H)    LPT00  P=0000 R=0100 T=100
($H)    PRT00  P=0000 R=0100 T=100
($H)    PRT01  P=0000 R=0100 T=100
($H)    PRT02  P=0000 R=0100 T=100
($H)    CRP00  P=0000 R=0100 T=100    REQUESTED    RUNNING
($H)    CDR00  P=0000 R=0100 T=100
($H)ENTER COMMAND (RECORDS):
CHARACTER KVDT00 "B"
($H)ENTER COMMAND (RECORDS):
```

㉔

NOTE

An option in the system exerciser program allows you to substitute a specific character or characters for the usual test pattern record. Use this option for example, if you suspect a key on your keyboard-display doesn't always function correctly or if the line printer misprints a letter or letters. You can use this option to troubleshoot a character dropout fault. Skip step 24 if you do not need to use this option.

24. Select a specific character or characters to be output to the device.

   o If a specific character is to be output to a single device enter:

```
CHARACTER  DEVICE  "X"  (C/R)
   "X" = CHARACTER
```

3-9. RUN SYSTEM EXERCISER IN RECORDS MODE (CONT)

```
㉕ STOP MT901
   ($H)ENTER COMMAND (RECORDS):
㉖ STOP MSM01
   ($H)ENTER COMMAND (RECORDS):
㉗ STOP MSM03
   ($H)ENTER COMMAND (RECORDS):
   REPORT
   ($H) DATE/TIME = 1984/03/08 0011:44.333
   ($H) PASS ELAPSED TIME =   00 HOURS  04 MINUTES  06 SECONDS
   ($H) TEST RUNNING IN MEMORY LOCATIONS
   ($H)  54A5E THRU  557EC
   ($H)  SYMB-DEV   CHAN   LRN  #RECS-WRIT   #RECS-READ   HR MIN SEC
   ($H)   MSM00     0400    1            0            0   00: 00: 00
   ($H)   MSM01     0480    9          100          100   00: 00: 01
   ($H)   MSM02
   ($H)   MSM03     0600   11          100          100   00: 00: 02
   ($H)   MSM04
   ($H)   MSM05
   ($H)   MT900     1600   16          100          100   00: 00: 43
   ($H)   MT901     1680   17          100          100   00: 00: 44
   ($H)   KVDT00    1E00   23          119            0   00: 00: 11
   ($H)   KVDT01    3E00   24            0            0   00: 00: 00
```

NOTE

The exerciser continues to run until specified number of records is completed. You can prompt the exerciser using these commands:

STOP device - stops a device test
STATUS device - gives status of device test
TERMINATE - cancels the exerciser program
REPORT - gives lapsed time

25. If satisfied that all devices are operating as required, stop each device being tested by entering the command:

STOP△DEVICE NAME (C/R)

- System responds ($H) ENTER COMMAND (RECORDS)

26. Repeat step 25 for each device.

- System responds ($H) ENTER COMMAND (RECORDS)

27. Enter: REPORT (C/R)

- System reports status of device tested; report ends with your name, today's date and ($H) ENTER COMMAND (RECORDS).

3-9. RUN SYSTEM EXERCISER IN RECORDS MODE (CONT)

```
     ($H) OPERATORS NAME AND DATE ON THIS LINE
㉘-- ($H)ENTER COMMAND (RECORDS):
  -->TERMINATE
     ($H) DATE/TIME = 1984/03/08 0012:04.433
     ($H) PASS ELAPSED TIME =   00 HOURS  04 MINUTES  26 SECONDS
     ($H) TEST RUNNING IN MEMORY LOCATIONS
     ($H)  54A5E THRU  557EC
     ($H)  SYMB-DEV  CHAN  LRN  #RECS-WRIT  #RECS-READ  HR MIN SEC
     ($H)   MSM00    0400    1           0           0  00: 00: 00
     ($H)   MSM01    0480    9         100         100  00: 00: 01
     ($H)   MSM02
     ($H)   MSM03    0600   11         100         100  00: 00: 02
     ($H)   MSM04
     ($H)   MSM05
     ($H)   MT900    1600   16         100         100  00: 00: 43
     ($H)   MT901    1680   17         100         100  00: 00: 44
```

28. Terminate exerciser, enter: TERMINATE (C/R)

    This terminates the system exerciser.

NOTE

> System gives final printout, date and time. There could be a delay of about 10 minutes from the time the system exerciser is terminated until the system comes back on line particularly if mag tapes have to rewind.

29. At console terminal enter: Δ CΔ:$S: (C/R)

    Enter: SET____LISTENER Δ * Δ -ON (C/R)

30. Exerciser test in records mode is complete.

    - When I/O terminals respond with LISTENER FOR TERMINALS ACTIVATED/GROUP READY you can resume normal operation

3-10. RUN SYSTEM EXERCISER IN SIMULATOR MODE

INITIAL SETUP

Test, Measurement and Diagnostic Equipment	Materials/Spare Parts	Supplies
• System pack	• Pencil	• Scratch packs (5 ea) • Scratch tapes (2 ea) • Scratch diskettes (2 ea) • Punch cards (4000 ea)

1. Run system exerciser in RECORDS mode (para 3-9, steps 1-13).

NOTE

To run the system exerciser in simulator mode takes approximately eight hours. After that time the simulator program will abort active devices and automatically issue a report. Simulator may then be terminated. While the simulator is running the console terminal will display this message:

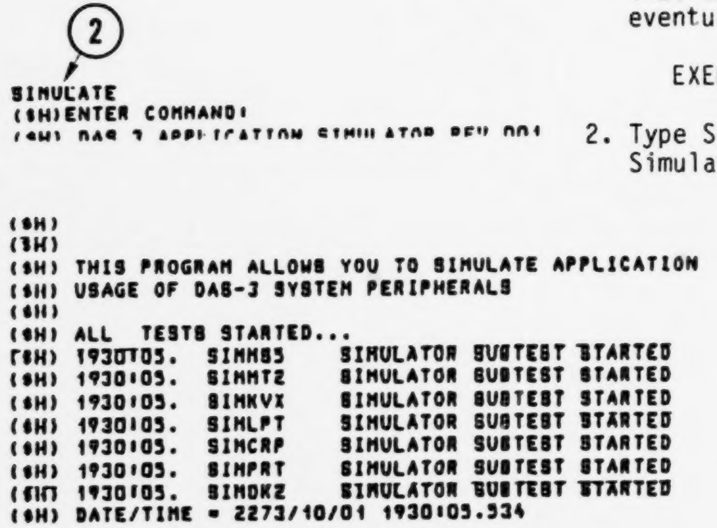
ENTER COMMAND

At any time you can abort the test by entering the command

SIMSTOP (C/R)

You will get a message telling you that the system is aborting and eventually that

EXERCISER HAS BEEN TERMINATED



```
SIMULATE
($H)ENTER COMMAND:
($H) DAS 3 APPLICATION SIMULATOR REV 001


($H)
(3H)
($H) THIS PROGRAM ALLOWS YOU TO SIMULATE APPLICATION
($H) USAGE OF DAS-3 SYSTEM PERIPHERALS
($H)
($H) ALL  TESTS STARTED...
($H) 1930:05.  SIMMS3    SIMULATOR SUBTEST STARTED
($H) 1930:05.  SIMMT2    SIMULATOR SUBTEST STARTED
($H) 1930:05.  SIMKVX    SIMULATOR SUBTEST STARTED
($H) 1930:05.  SIMLPT    SIMULATOR SUBTEST STARTED
($H) 1930:05.  SIMCRP    SIMULATOR SUBTEST STARTED
($H) 1930:05.  SIMPRT    SIMULATOR SUBTEST STARTED
($H) 1930:05.  SIMDK2    SIMULATOR SUBTEST STARTED
($H) DATE/TIME = 2273/10/01 1930:05.334
```

2. Type SIMULATE. Press RETURN. Simulator runs.

3-10. RUN SYSTEM EXERCISER IN SIMULATOR MODE (CONT)

3. For report of test progress and conditions. Type REPORT. Press RETURN.

③

```
REPORT
($H) DATE/TIME = 2198/05/08 1935:05.334
($H) PASS ELAPSED TIME =   00 HOURS  10 MINUTES  45 SECONDS
($H) TEST RUNNING IN MEMORY LOCATIONS
($H)  33354 THRU  34630
($H)  SYMB=DEV  CHAN  #RECS=WRIT  #RECS-READ  HR MN SC
($H)   MSM00                   0           0  00: 00: 00
($H)   MSM01               16405           0  00: 00: 00
($H)   MSM02               16438           0  00: 00: 00
($H)   MSM03               16512           0  00: 00: 00
($H)   MSM04               16560           0  00: 00: 00



($H)   KVDT09                879           0  00: 00: 00
($H)   KVDT10                882           0  00: 00: 00
($H)   LPT00                5034           0  00: 00: 00
($H)   PRT00                 506           0  00: 00: 00
($H)   PRT01                 507           0  00: 00: 00
($H)   PRT02                 509           0  00: 00: 00
($H)   DSK00                5000        4900  00: 00: 00
($H)   DSK01                5000        4924  00: 00: 00
($H)   CRP00                 501           0  00: 00: 00
($H)   CRD00                   0           0  00: 00: 00
($H)ENTER COMMAND:
($H)XORSIZ: 02 0105 (1C) CH1C00 ST0022 SC00500001  DEVICE NOT READY
($H)!CRP00
($H)XORSIZ: 02 0105 (1C) CH1C00 ST0022 SC00500001  DEVICE NOT READY
($H)!CRP00
($H)XORSIZ: 02 0105 (1C) CH1C00 ST0022 SC00500001  DEVICE NOT READY
($H)!CRP00
REPORT
($H) DATE/TIME = 2170/01/17 1946:05.334
($H) PASS ELAPSED TIME =   00 HOURS  34 MINUTES  40 SECONDS
($H) TEST RUNNING IN MEMORY LOCATIONS
($H)  33354 THRU  34630
($H)  SYMB-DEV  CHAN  #RECS-WRIT  #RECS-READ  HR MN SC
($H)   MSM00                   0           0  00: 00: 00
($H)   MSM01               51588           0  00: 00: 00
($H)   MSM02               51618           0  00: 00: 00
```

NOTE

This type of message is given when hopper is empty and/or stacker is full. Go to card reader/punch and take the required action. To bring card reader/punch back on line after clearing problem, press STOP/RESET on the operator panel twice, press START once (this should clear error condition and green ready light should be on). Then press START on controller panel. This places the card reader/punch on line and punching will begin.

3-10. RUN SYSTEM EXERCISER IN SIMULATOR MODE (CONT)

```
($H)    MSM04            51714          0  00: 00: 00
($H)    KSM05            51762          0  00: 00: 00
($H)    MT900            10000        756  00: 00: 00
($H)    MT901            10000        767  00: 00: 00
($H)    KVDT00            2850          0  00: 00: 00
($H)    KVDT01            2853          0  00: 00: 00
($H)    KVDT02            2856          0  00: 00: 00
($H) 1946:05.  SIMOK2   SIMULATOR SUBTEST COMPLETE
($H)    KVDT03            2859          0  00: 00: 00
($H)    KVDT04            2865          0  00: 00: 00
($H)    KVDT05            2868          0  00: 00: 00
($H)    KVDT06            2870          0  00: 00: 00
($H)    KVDT07            2872          0  00: 00: 00
($H)    KVDT08            2875          0  00: 00: 00
($H)    KVDT09            2878          0  00: 00: 00
($H)    KVDT10            2881          0  00: 00: 00
($H)    LPT00            15544          0  00: 00: 00
($H)    PRT00             1577          0  00: 00: 00
($H)    PRT01             1579          0  00: 00: 00
($H)    PRT02             1581          0  00: 00: 00
($H)    DSK00            15000      15000  00: 34: 47
($H)    DSK01            15000      15000  00: 35: 47
($H)    CRP00             1554          0  00: 00: 00
($H)    CRD00                0          0  00: 00: 00
($H)ENTER COMMAND:
($H)XORSIZ: 02 0105 (1C) CH1C00 ST0022 SC00500001  DEVICE NOT READY
($H)!CRP00
($H)XORSIZ: 02 0105 (1C) CH1C00 ST0022 SC00500001  DEVICE NOT READY
($H)!CRP00
($H)XORSIZ: 02 0105 (1C) CH1C00 ST0022 SC00500001  DEVICE NOT READY
($H)!CRP00
REPORT
($H) DATE/TIME = 2406/09/11 1954:05.534
($H) PASS ELAPSED TIME =   00 HOURS  53 MINUTES  06 SECONDS
($H) TEST RUNNING IN MEMORY LOCATIONS
($H)  33354 THRU  34630
($H)  SYMB-DEV  CHAN  #RECS-WRIT  #RECS=READ  HR MN SC
($H)    MSM00                0          0  00: 00: 00
($H)    MSM01            79530          0  00: 00: 00
($H)    MSM02            79579          0  00: 00: 00
($H)    MSM03            79632          0  00: 00: 00
($H)    MSM04            79680          0  00: 00: 00
($H)    MSM05            79728          0  00: 00: 00
($H)    MT900            10000       6386  00: 00: 00
($H)    MT901            10000       6597  00: 00: 00
($H)    KVDT00            4405          0  00: 00: 00
($H)    KVDT01            4407          0  00: 00: 00
($H)    KVDT02            4410          0  00: 00: 00
($H)    KVDT03            4413          0  00: 00: 00
($H)    KVDT04            4415          0  00: 00: 00
($H)    KVDT05            4418          0  00: 00: 00
```

3-10. RUN SYSTEM EXERCISER IN SIMULATOR MODE (CONT)

```
($H) Make Ready Card Reader
($H)XORSIZ! 02 0105 (1C) CH1C80 ST0013 SC00500001  DEVICE NOT READY
($H)!CRD00
($H)XORSIZ! 02 0105 (1C) CH1C80 ST0012 SC00500001  DEVICE NOT READY
($H)!CRD00
($H)XORSIZ! 02 0105 (1C) CH1C80 ST0011 SC00500001  DEVICE NOT READY
($H)!CRD00
($H)XORSIZ! 02 0105 (1C) CH1C80 ST0012 SC00500001  DEVICE NOT READY
($H)!CRD00
($H)XORSIZ! 02 0105 (1C) CH1C80 ST0011 SC00500001  DEVICE NOT READY
($H)!CRD00
($H)XORSIZ! 02 0105 (1C) CH1C80 ST0012 SC00500001  DEVICE NOT READY
```

NOTE

This message is printed out after 4000 cards have been punched. Load punched cards in rear hopper to read. Begin read by pressing STOP/RESET twice, START, and then START on the controller panel. Device not ready message will appear when operator action is required. Load an EOF card behind the last of the 4000 cards to be read.

NOTE

Simulator subtest complete messages will appear (similar to these shown) for every subtest.

4. When test is completed after eight hours, the simulator will issue a report. When report is issued simulator may be terminated.

5. Type TERMINATE. Press RETURN.

   - After final status report, system responds with ($H) RDY:

```
($H) 2023:05.  SIMKVX  SIMULATOR SUBTEST COMPLETE
($H) 2023:05.  SIMCRP  SIMULATOR SUBTEST COMPLETE
```

NOTE

There could be a delay of up to 10 minutes if mag tapes have to rewind.

6. Enter△C△:$S: (C/R)

7. Enter SET___LISTEN△*△-ON (C/R)

8. Resume operations when I/O terminal respond with:

LISTENER FOR TERMINALS ACTIVATED

Section III. MAINTENANCE PROCEDURES

3-11. GENERAL

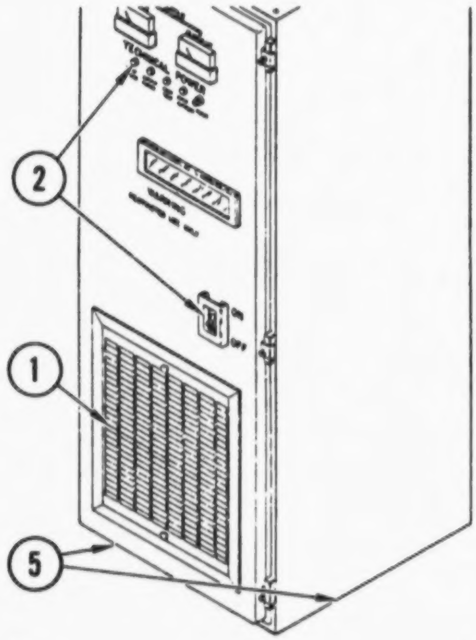
This section contains maintenance procedures for system equipment such as the console printer, frequency converter and humidifier which are not covered in other manuals. See appendix A for a list of manuals which contain operator maintenance procedures for equipment such as the ADP and communications devices.

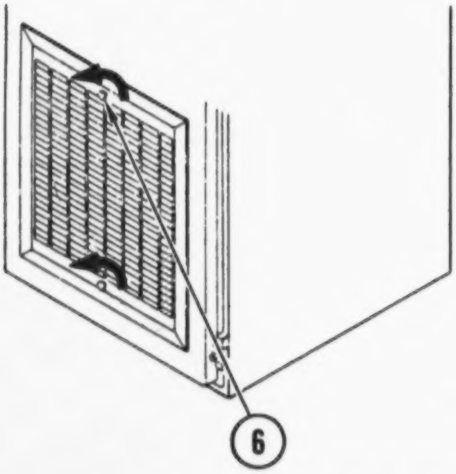
3-12. CLEAN FREQUENCY CONVERTER AND REMOVE/REPLACE AIR FILTER

INITIAL SETUP

Common Tools
- Vacuum cleaner
- Flat tip screwdriver

Materials/Spare Parts
- Soft cloth
- Non-spray window cleaner





Clean

1. Using nozzle with brush, vacuum grille.
2. Vacuum dust from circuit breaker, meters and lights.
3. If meters are smudged, clean with lint-free cloth and window cleaner.
4. Wipe front of cabinet with soft, clean cloth.
5. Vacuum sides and front along floor.

Remove Air Filter

NOTE

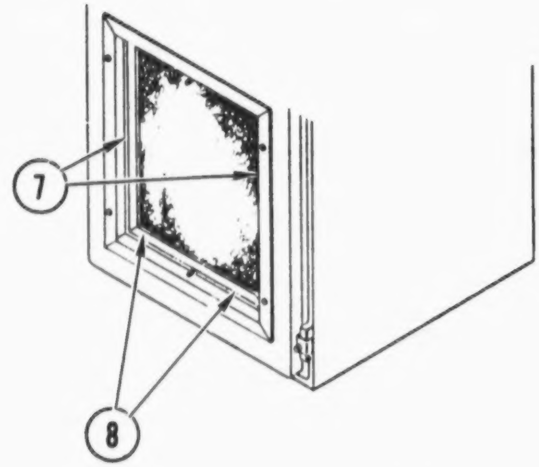
Air filter may be paper throw-away type or metal reusable type. If reusable type, wash with warm soapy water, rinse and let dry before replacing it.

WARNING

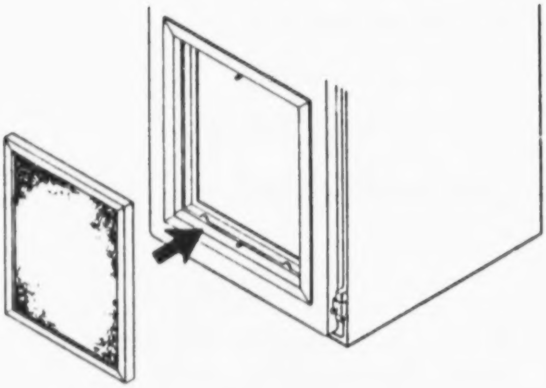
Electrocution may result if task is done with source power on.

6. Turn power off and, to open grill, remove thumbscrew as shown. Pull grille open.

3-12. CLEAN FREQUENCY CONVERTER AND REMOVE/REPLACE AIR FILTER (CONT)

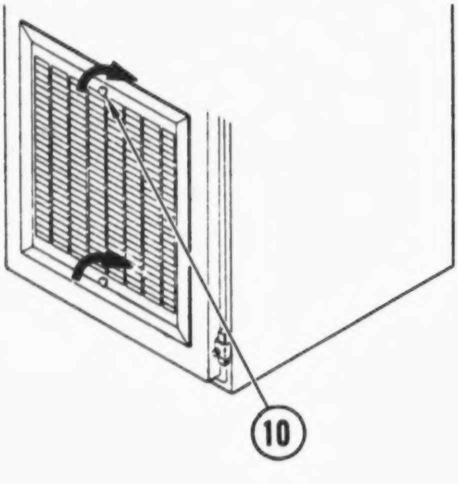


7. Using flat tip screwdriver loosen filter around edges.
8. Pull out filter by raising it above hold down.



Replace Air Filter

9. Fit filter in place. Make sure air flow arrow on filter points into device.



10. Close grill. Install and tighten thumbscrew, turn power ON.

3-13. FILL HUMIDIFIER PUMP TANK

INITIAL SETUP

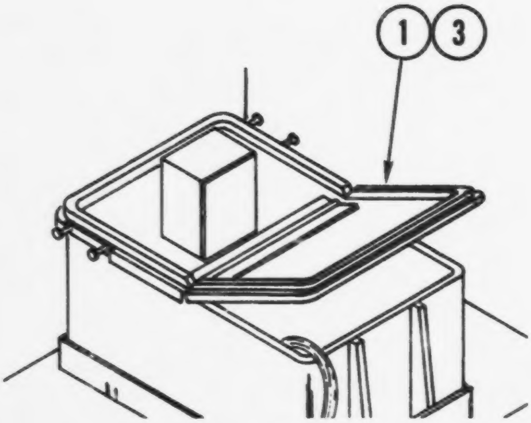
Materials/Spare Parts
- Distilled water (5 gal)

CAUTION

Use distilled water. Impurities in tap water may be passed through to air and clog primary filters in disk drives or damage humidifier.

NOTE

Fill pump tank at beginning of each shift or every eight hours when in continuous operation.



1. Lift hinged cover.
2. Fill pump tank with distilled water.
3. Close hinged cover.

WARNING

Spilled water can be an electrical shock hazard or can cause a fall.

4. Clean up any spilled water.

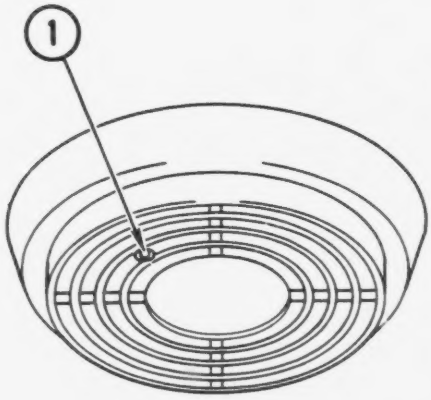
3-14. TEST/REPLACE SMOKE DETECTOR BATTERIES

INITIAL SETUP

Materials/Spare Parts
- 9V battery (2 ea)

NOTE

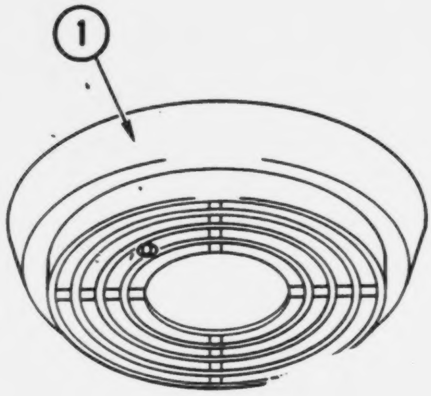
The battery which powers the alarm is self tested by the circuitry design. When the battery power runs low the device will begin to beep once each minute meaning it is time to change the battery. It is best to change both batteries at the same time since the emergency light battery is not self tested.



Test

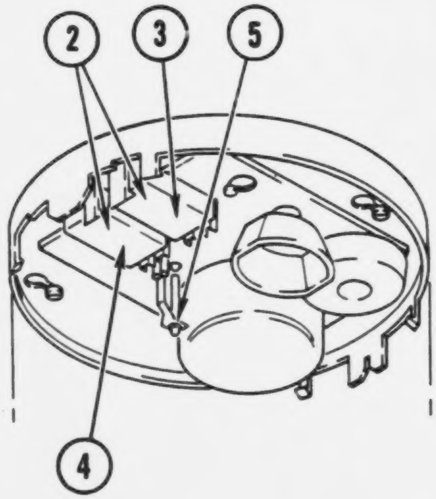
1. Press test pushbutton.
   - Alarm must sound
   - Emergency light must light
2. If alarm does not sound or light does not light, replace batteries.

3-14. TEST/REPLACE SMOKE DETECTOR BATTERIES (CONT)



Replace

1. Pull snap-on cover from smoke detector.



NOTE

Observe batteries before removing. Detector requires an alkaline only battery and a regular carbon or alkaline 9 volt battery.

2. Remove both batteries.

3. Install a fresh 9V alkaline battery in position shown.

4. Install a fresh 9V carbon or alkaline battery in position shown.

5. Retest detector.

   o If alarm or light still do not work, tell your supervisor maintenance is required

   o If alarm and light work, go to step 5

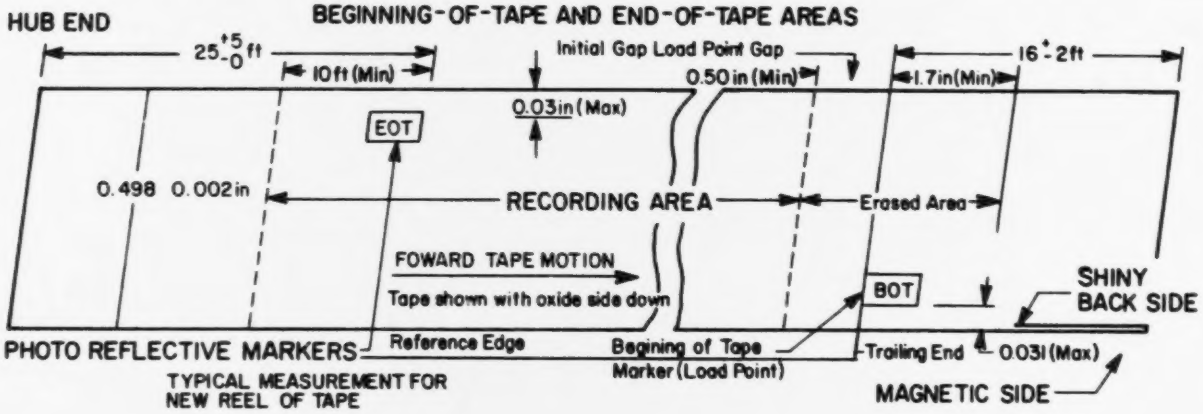
6. Aline hole in cover with pushbutton.

7. Snap cover in place.

3-15. REMOVE/REPLACE MAGNETIC TAPE BOT AND EOT MARKERS

INITIAL SETUP

Materials/Spare Parts
- Reflective magnetic tape markers


HUB END
BEGINNING-OF-TAPE AND END-OF-TAPE AREAS
25 +5 -0 ft
10 ft (Min)
0.03 in (Max)
Initial Gap Load Point Gap
0.50 in (Min)
16 ± 2 ft
1.7 in (Min)
EOT
0.498 0.002 in
RECORDING AREA
Erased Area
FOWARD TAPE MOTION
Tape shown with oxide side down
BOT
SHINY BACK SIDE
PHOTO REFLECTIVE MARKERS
Reference Edge
Begining of Tape Marker (Load Point)
Trailing End
0.031 (Max)
TYPICAL MEASUREMENT FOR NEW REEL OF TAPE
MAGNETIC SIDE

NOTE

Every magnetic tape should have a history-of-use sticker on its reel. Each time the tape is mounted for use, note this on the sticker. Clean the tape after every tenth use and check condition of BOT/EOT markers. Replace any marker which is loose or missing.

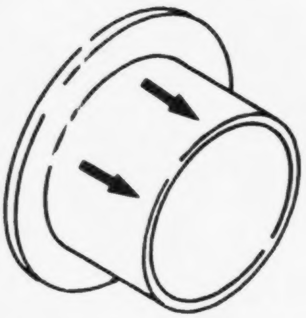
1. Unreel tape leader to marker.
   - Remove/replace BOT marker while tape is on supply reel
   - Remove/replace EOT marker while tape is on take-up reel
2. Peel old marker from tape.
3. Press new adhesive marker onto shiny side of tape. If old marker was missing, measure from end of tape to find correct location shown.
4. Clean magnetic tape (TM 11-7035-203-10).

3-16. REMOVE/REPLACE PANEL CLOCK BATTERY

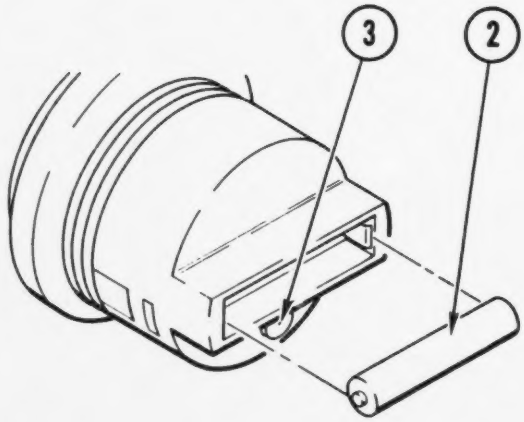
INITIAL SETUP

Materials/Spare Parts
- 1.5V battery

Remove

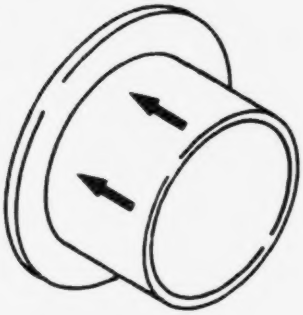


1. Pull rim of clock gently but firmly from mounting base.



2. In rear of clock, replace battery.
3. Turn black knob to set clock.

3-16. REMOVE/REPLACE PANEL CLOCK BATTERY (CONT)



Replace

1. Push clock firmly into base.
2. Turn case as necessary to aline.

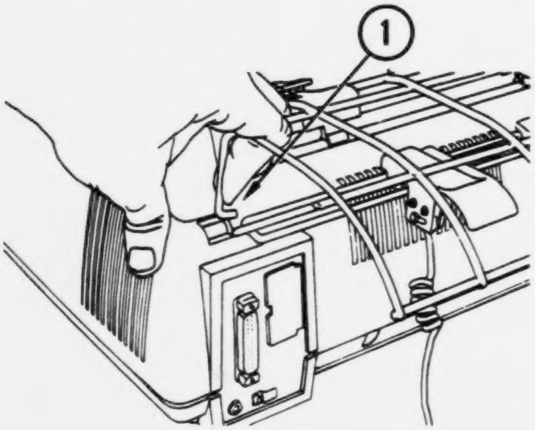
3-17. INSTALL CONSOLE PRINTER PAPER RACK

INITIAL SETUP

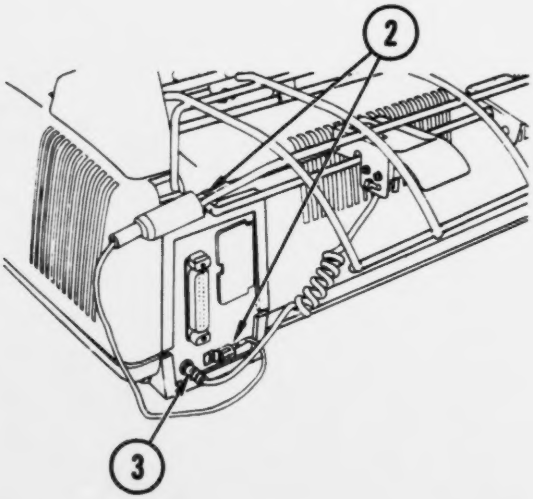
Materials/Spare Parts
- Paper Rack

WARNING

Ensure console printer is powered off before installing paper rack. Power ON/OFF switch is on rear of console printer.



1. Hook one end of paper rack into cutout provided at rear of printer, then hook other end into its cutout by springing the support arm outward until it slips into the cutout.



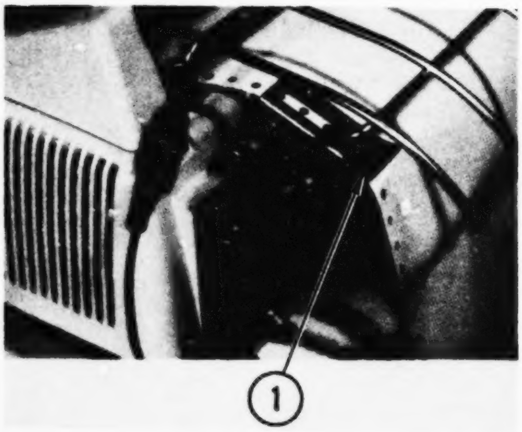
2. Attach static grounding strap between rear of printer and the paper rack.
3. Plug external paper out switch into the jack at rear of printer.

3-18. INSTALL/REMOVE PAPER IN CONSOLE PRINTER

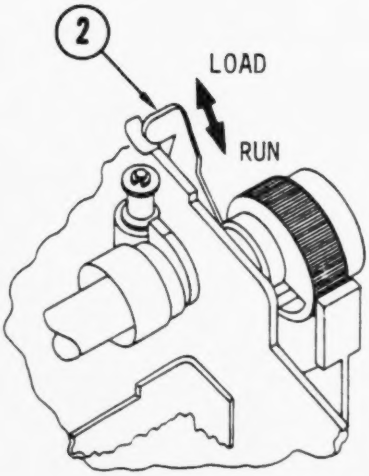
INITIAL SETUP

Supplies
- Pin feed (fan fold) paper

Install

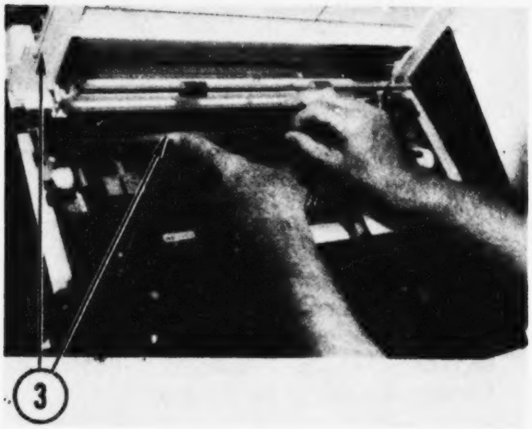


1. Power off and then feed paper from rear. Ensure paper goes through rear paper guides or paper out switch will be bypassed. Push paper forward under the platen.



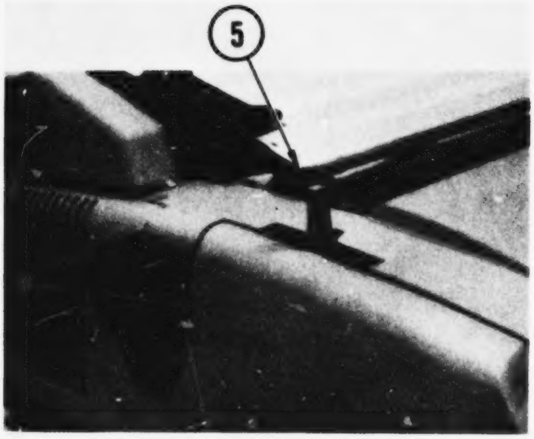
2. Set RUN/LOAD lever to the load position (toward rear of printer), and close access cover.

3-18. INSTALL/REMOVE PAPER IN CONSOLE PRINTER (CONT)

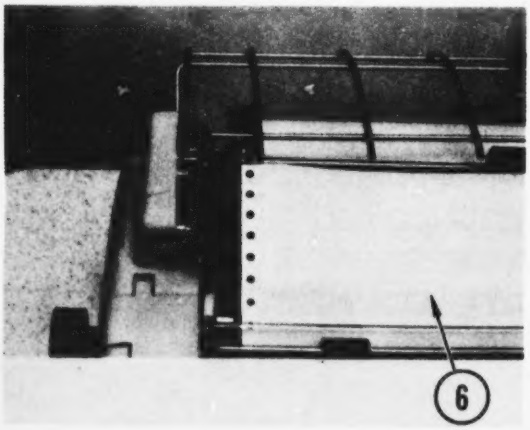


3. Open printer access cover by lifting the front edge (next to keyboard) up and toward the rear of printer, then guide paper up and over the platen until it clears the paper guides.

4. Raise the paper tear-off shield toward rear of printer.

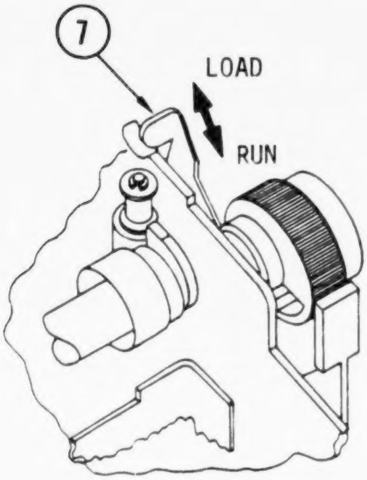


5. Set paper roller lever in the center.

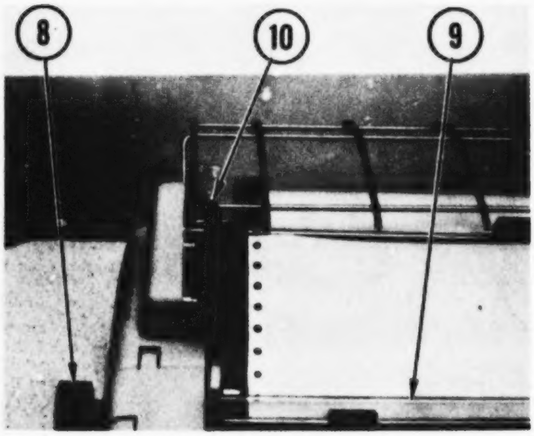


6. Feed paper into printer. Rotate the platen knob to advance the paper into the printer. Ensure paper clears tear-off shield as it moves toward rear under the plastic shield.

3-18. INSTALL/REMOVE PAPER IN CONSOLE PRINTER (CONT)



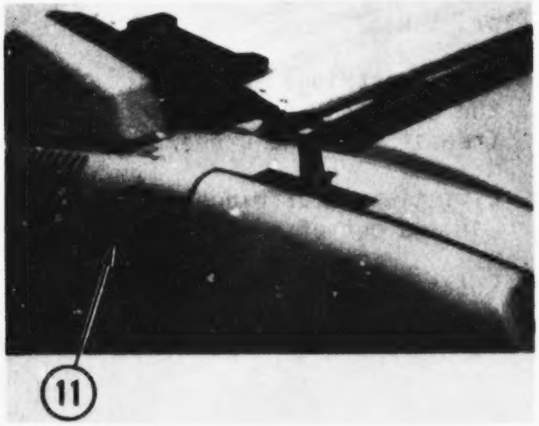
7. Open the access cover, return the RUN/LOAD lever to the RUN position and close the access cover.



8. Position the paper with the platen knob to locate the desired print line in front of the print head.
9. Lower the paper tear-off shield.
10. Open the tractor covers, install paper on the pin wheels and close covers.

NOTE

Make sure there is no slack in paper between tractors. If necessary, reposition tractors to eliminate slack.



11. To advance paper, turn platen knob.

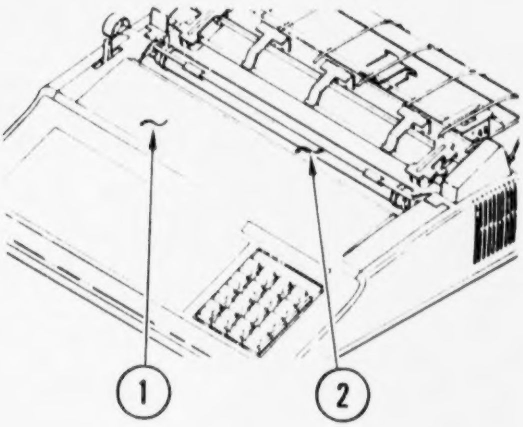
Remove

1. Power off printer.
2. Tear off paper at perforation.
3. Turn platen knob to rear until paper is free.

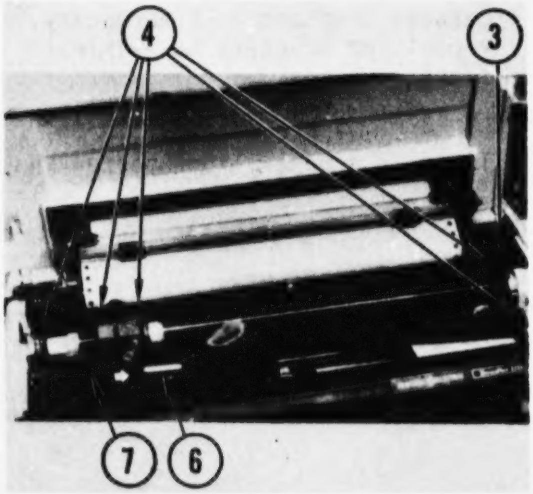
3-19. INSTALL RIBBON IN CONSOLE PRINTER

INITIAL SETUP

Materials/Spare Parts
- Ribbon cartridge

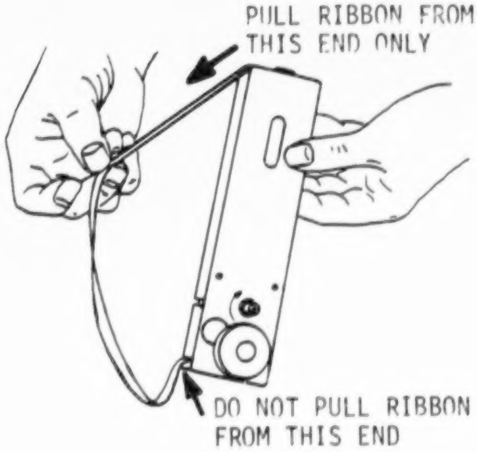


1. Power OFF console printer and open access panel.
2. Lift paper shield.



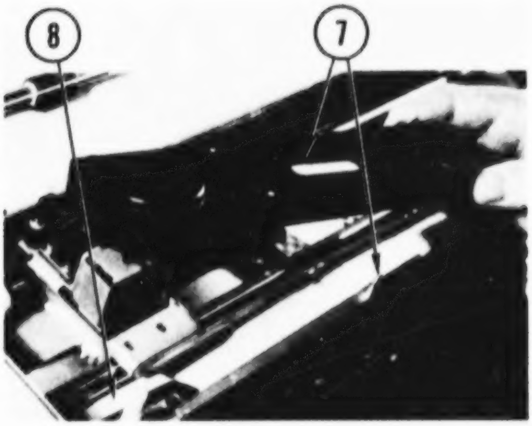
3. Set run/load lever to load position.
4. Free ribbon from around rollers and print head.
5. Grasp cartridge in middle. Slide the cartridge to the right enough to free it from the keeper latch.
6. Lift ribbon cartridge off locator pin and out of console printer.
7. Rotate ribbon drive knob to take up ribbon slack into cartridge.

3-19. INSTALL RIBBON IN CONSOLE PRINTER (CONT)

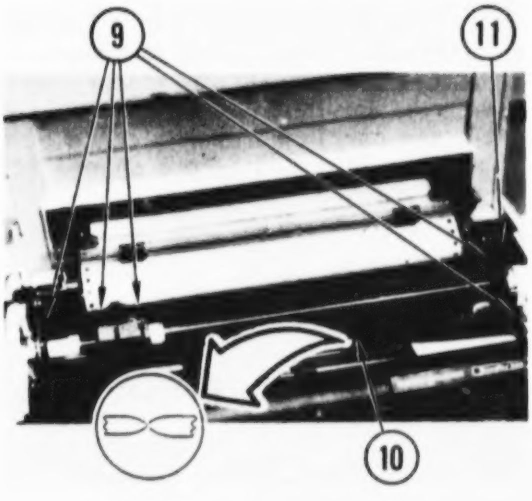

PULL RIBBON FROM THIS END ONLY
DO NOT PULL RIBBON FROM THIS END

NOTE

The ribbon cartridge contains a half turn, or twist, to allow both sides of the ribbon to be used. It is possible to pull this twist inside of the cartridge if the cartridge drive knob is rotated before the cartridge is installed on the printer. Do not rotate the drive knob until the ribbon cartridge is installed on the printer and the half turn, or twist, is properly positioned. Do not pull ink ribbon from take-up side (rear side) of cartridge.



7. Set ribbon cartridge in position on locator pin.
8. Press down on cartridge until it snaps into keeper latch.

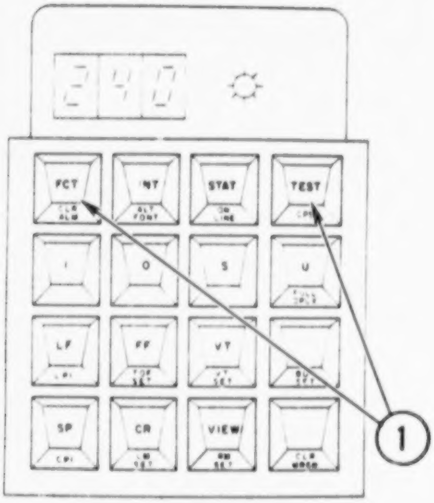


9. Thread ribbon around rollers starting at right and then through printhead and left rollers.
10. Make sure twist in ribbon is located between ribbon roller and locater pin.
11. Set run/load lever to run position.
12. Close access panel and paper shield.

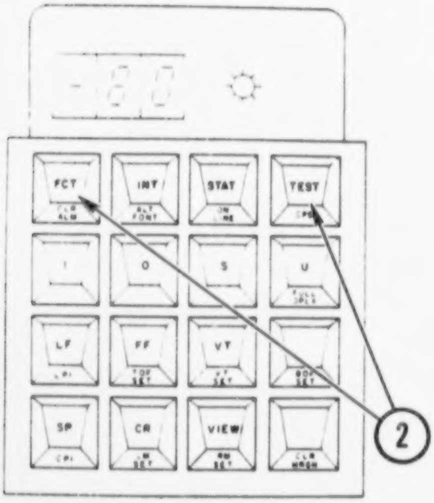
3-20. CHANGE CONSOLE PRINTER BAUD RATE

NOTE

A value of 15, 30, 60, 120, 240, 480 or 960 characters per second can be set on the console printer. This corresponds to a baud rate of 150, 300, 600, 1200, 2400, 4800 or 9600 bps. The setting alternates each time the function cycle is activated as indicated on the PPI.


240
FCT
CLR ALM
INT
ALT FONT
STAT
ON LINE
TEST
CPS
I
O
S
U
FULL DPLX
LF
LPI
FF
TOF SET
VT
VT SET
SP
CPI
CR
LM SET
VIEW/
RM SET
CLR WRGN
1

1. Press and hold the FCT key while pressing the TEST button. This will cause the PPI to display the current rate.


FCT
CLR ALM
INT
ALT FONT
STAT
ON LINE
TEST
CPS
I
O
S
U
FULL DPLX
LF
LPI
FF
TOF SET
VT
VT SET
BOF SET
SP
CPI
CR
LM SET
VIEW/
RM SET
CLR WRGN
2

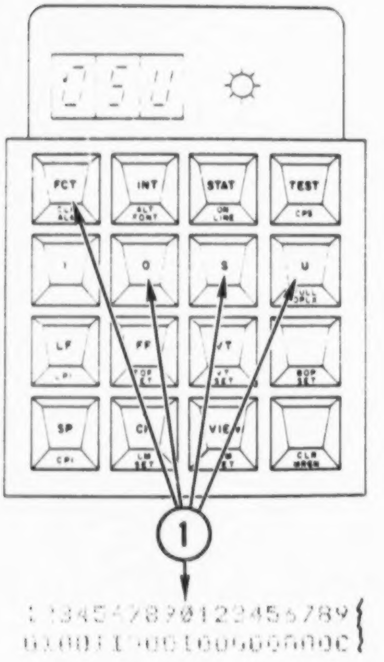
2. Repeat Step 1 until the PPI shows a different rate. Repeat process until proper setting appears in PPI.

3. Press carriage return; console printer data print rate change is complete.

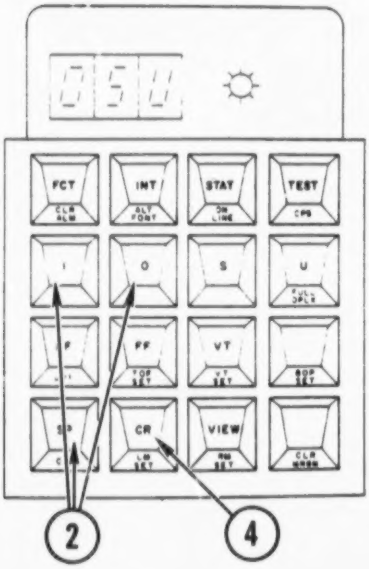
3-21. CHANGE CONSOLE PRINTER STRAP OPTIONS

NOTE

To change strapping order, first determine the options you intend to use. You must include straps 1, 2, 5, 6, 10, 12, 21, 25, 29 and 32 in your strapping configuration.


OSU
FCT
CLR ALM
INT
ALT FONT
STAT
ON LINE
TEST
CPS
1
0
S
U
FULL DPLX
LF
LPI
FF
TOF SET
VT
VT SET
BOF SET
SP
CPI
CR
LM SET
VIEW
RM SET
CLR MRGN
1
1234567890123456789

1. Determine what straps are in place by pressing and holding FCT key and sequentially pressing the 0 key, S key and U key. PPI will indicate OSU and console printer will print a two-line message.


OSU
FCT
CLR ALM
INT
ALT FONT
STAT
ON LINE
TEST
CPS
1
0
S
U
FULL DPLX
LF
FF
TOF SET
VT
VT SET
BOF SET
SP
CR
LM SET
VIEW
RM SET
CLR MRGN
2
4

2. If strap option 1 is already in place, press SP (space) bar to the option 2 position.
   - If option 1 is not in place, press the 1 key for IN or the 0 key for OUT
3. Repeat step 2 for all options.
4. Complete strapping and press CR key for carriage return. Your console printer is correctly strapped.
5. Repeat step 1 to verify strapping order.

3-21. CHANGE CONSOLE PRINTER STRAP OPTIONS (CONT)

Strap	Function Obtained when Strap Option is "IN"
1	OPTIONAL PAPER OUT/LOW SWITCH ACTIVE
2	AUTO CR WITH LF Execute an automatic Carriage Return with the Line Feed upon recognition of an LF code. (NEW LINE function)
3 & 5	AUTO ANSWERBACK Enable an Automatic Answerback to be sent.
4 & 5	EOT CAUSES DATA SET DISCONNECT Enable a Dataset Disconnect on recognition of an EOT code. STRAP OPTION 5 must be programmed IN when this option is programmed IN. When STRAP OPTIONS 20 and 21 are IN, this strap must be OUT.
5	DATA SET OPERATION Enable a full RS-232C Dataset Interface. This includes FALSE CALL DISCONNECT, LOSS OF CARRIER DISCONNECT, CODE CONTROLLED DISCONNECT, and control of the READY INDICATOR by CLEAR TO SEND (PIN 5) when DATASET READY (PIN 6) is ON. The READY INDICATOR is OFF when DATASET READY is OFF; flashes when DATASET READY is ON with CLEAR TO SEND OFF; and is ON when both DATASET READY and CLEAR TO SEND are ON. This option must be programmed IN when STRAP OPTIONS 3, 4, or 14 are programmed IN. When strapped for the non-Dataset mode (STRAP OPTION 5 OUT), the DATASET DISCONNECTS given above are disabled. An ON condition in Pin 5 lights the READY indicator, except when the Current Interface option is used, then the indicator is turned off only when the line is open, or in an extended spacing condition.
6	PARITY CHECKED PER STRAPS 7 & 8 Enable parity checking of received data, according to the type of Parity Bit defined by STRAP OPTIONS 7 and 8 and enable the printing of a diamond dot-matrix pattern on detection of an error.
7 & 8	PARITY TYPE Select the type of Parity Bit transmitted; with STRAP OPTION 6 programmed IN, determines the type of Parity Bit check on Received Data.

7	8	Parity Bit
OUT	OUT	EVEN
OUT	IN	ODD
IN	OUT	MARK
IN	IN	SPACE

3-21. CHANGE CONSOLE PRINTER STRAP OPTIONS (CONT)

Strap	Function Obtained when Strap Option is "IN"
9	ALARM* CAUSES DATA SET DISCONNECT Add ALARM to the functions that turn OFF the Data Terminal Ready signal (PIN 20). When STRAP OPTION 5 is IN, ALARM will cause Dataset disconnect unless STRAP OPTION 23 is IN.
10	READY/BUSY CAUSES DC1/DC3 Enable READY/BUSY to cause the transmission of DC1/DC3 codes due to the printer being in LOCAL, ALARM* or BUFFER FULL.
11	"BREAK" CAUSED BY PRINTER "BUSY" Enable transmission of a BREAK (INTERRUPT) signal due to LOCAL, ALARM* and BUFFER FULL.
12	ESCAPE CODE SEQUENCES IGNORED Ignore all Escape Code sequences. Not programmable remotely.
13	ESC H AND ESC J IGNORED Ignore ESC H and ESC J (Print ON/OFF) sequences.
14 & 15	INTERNAL MODEM OPTION INSTALLED Enable use of INTERNAL MODEM. STRAP OPTION 5 must be IN. To provide READY/BUSY on the EIA REQUEST TO SEND (PIN 4) signal, STRAP OPTION 14 must be OUT; BUSY includes LOCAL, ALARM*, and BUFFER FULL.
15	PRINTS IN PLACE OF #
16	PRINTS IN PLACE OF $
17	PRINT HEAD JAM ERASES BUFFER Discard data in the print buffer (not TEXT EDITOR data) when a servo stall condition occurs.

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* ALARM includes servo stall (paper jammed) and, when STRAP OPTION 1 is IN, PAPER OUT.

3-21. CHANGE CONSOLE PRINTER STRAP OPTIONS (CONT)

Strap	Function Obtained when Strap Option is "IN"
18	HORIZONTAL SPACING AT PRINT SPEED Move through consecutive spaces and Horizontal Tabs at print speed. An improvement in print quality can be obtained at the cost of speed, by programming this strap IN.
19	RESERVED FOR SPECIAL APPLICATION
20 & 5	HALF DUPLEX WITH 202 TYPE DATA SET Select half-duplex protocol for use with a Type 202 switched network Dataset. STRAP OPTION 5 is not needed, but should be IN to avoid confusion.
21, 20 & 5	EOT USED FOR LINE CONTROL Select EOT as line turn code. STRAP OPTION 4 must be OUT. STRAP OPTION 20 must be IN.
21	ENQ CAUSES ACK/NAK RO UNITS ONLY - Enable ACK/NAK response to ENQ when the half-duplex protocol is not used--STRAP OPTION 20 MUST BE OUT. The NAK response will be due to SERVO STALL, PAPER OUT, BUFFER FULL, or PARITY ERROR. PARITY ERROR storage is cleared upon transmission of the NAK code.
22, 20 & 5	NON-CODED LINE CONTROL Select Non-coded line control--STRAP OPTION 20 MUST BE IN. When this strap is OUT, coded line control is enabled.
22	ENQ CAUSES ACK/NAK Enable ACK/NAK response to ENQ when the half-duplex protocol is not used--STRAP OPTION 20 MUST BE OUT. The NAK response will be due to SERVO STALL, PAPER OUT, or BUFFER FULL.
23, 5 & 9	ALARM BLOCKS AUTO ANSWER Do not disconnect Dataset due to ALARM*; do not allow Dataset Automatic Answer when ALARM* exists. STRAP OPTIONS 5 and 9 must be IN.

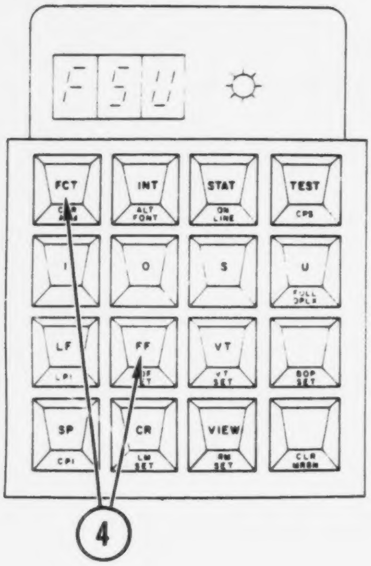
---

* ALARM includes servo stall (paper jammed) and, when STRAP OPTION 1 is IN, PAPER OUT.

3-21. CHANGE CONSOLE PRINTER STRAP OPTIONS (CONT)

Strap	Function Obtained when Strap Option is "IN"
24	READY/BUSY ON INTERFACE PIN 20 Interchange Dataset Interface Pins 4 and 20. This strap is intended to be used to put READY/BUSY information on Pin 20, in a non-Dataset (STRAP OPTION 5 OUT) application. STRAP OPTION 14 must be OUT.
25	PRINT DATA SAVED WHEN SWITCHING TO "LOCAL"
26	RO KEYS LF & FF DISABLED "ON LINE" Disable RO Control Cluster keys LF and FF when ON Line.
27	RESERVED FOR SPECIAL APPLICATION
28	AUTO LF WHEN CR RECOGNIZED Execute an automatic Line Feed with the Carriage Return upon recognition of a CR code.
29	PRINTS IN PLACE OF 0 (ZERO)
30, 3 & 5	AUTO ANSWERBACK DELAYED Delay transmission of Automatic Answerback for 2 seconds after Clear to Send (CB) turns ON. STRAP OPTIONS 3 and 5 must be programmed in when this option is programmed in.
31	EOT CODE CAUSES "PRINT OFF" Enable EOT as a PRINT OFF code in place of the ESC J sequence.
32	RECEIVED BREAK Strap IN = 120 milliseconds. Strap OUT = 1 character time.

3-22. SET UP CONSOLE PRINTER FOR FORMS/MARGINS

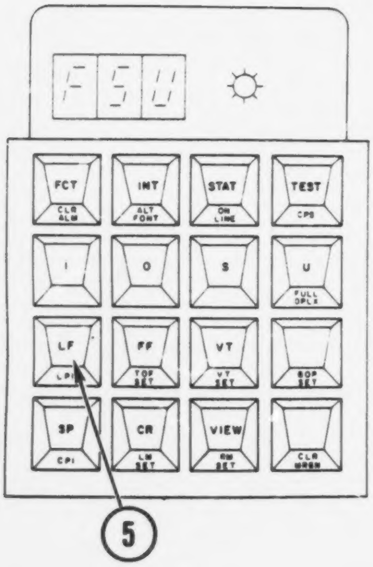

FSU
FCT
CLR ALM
INT
ALT FONT
STAT
ON LINE
TEST
CPS
I
O
S
U
FULL DPLX
LF
LPI
FF
TOF SET
VT
VT SET
BOP SET
SP
CPI
CR
LM SET
VIEW
RM SET
CLR MRGN
4

Set Forms

1. Install paper in console printer (para 3-18).
2. Manually advance form to the top of form position.
3. Turn the console printer ON and ensure you are in local mode.
4. Press and hold FCT key and TOF key. This causes the following:
   - Printer goes into vertical formatting mode
   - Blinking display indicates FSU until formatting is complete
   - Top of form is programmed
   - Any previous format is deleted

NOTE

Repeating the TOF set command automatically selects an 11-inch (279 mm) format. No bottom of form tabs are set.

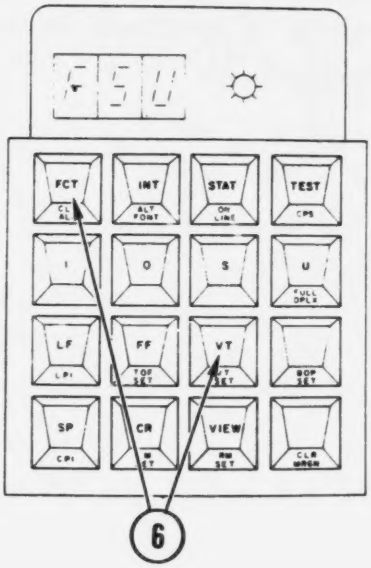

FSU
FCT
CLR ALM
INT
ALT FONT
STAT
ON LINE
TEST
CPS
I
O
S
U
FULL DPLX
LF
LPI
FF
TOF SET
VT
VT SET
BOP SET
SP
CPI
CR
LM SET
VIEW
RM SET
CLR MRGN
5

5. Feed the paper through the console printer using the line-feed key LF until the first vertical tab position is reached.

NOTE

Accidentally hitting any other key other than LF will abort the program, requiring the task to be reaccomplished.

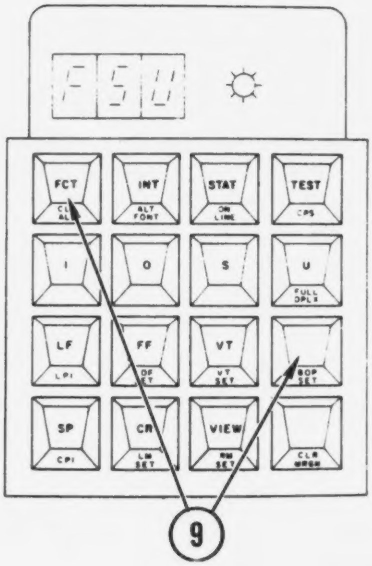
3-22. SET UP CONSOLE PRINTER FOR FORMS/MARGINS (CONT)


FCT
CL ALL
INT
ALT FONT
STAT
ON LINE
TEST
CPS
I
O
S
U
FULL DPLX
LF
LPI
FF
TOF SET
VT
VT SET
BOF SET
SP
CPI
CR
LM SET
VIEW
RM SET
CLR MRGN
6

6. At the desired vertical tab position press and hold FCT key and the VT set key.

7. Repeat steps 5 and 6 until you have set all your vertical tab positions. Up to 20 tabs may be set.

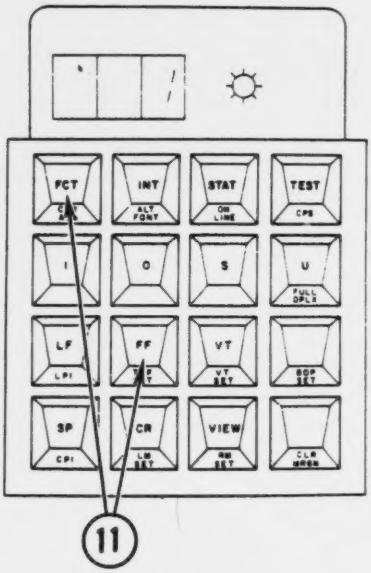
8. Feed the paper through the console printer with the LF key until the desired bottom of form position is reached.


FCT
CL ALL
INT
ALT FONT
STAT
ON LINE
TEST
CPS
I
O
S
U
FULL DPLX
LF
LPI
FF
TOF SET
VT
VT SET
BOF SET
SP
CPI
CR
LM SET
VIEW
RM SET
CLR MRGN
9

9. Press and hold FCT key while pressing the BOF set key.

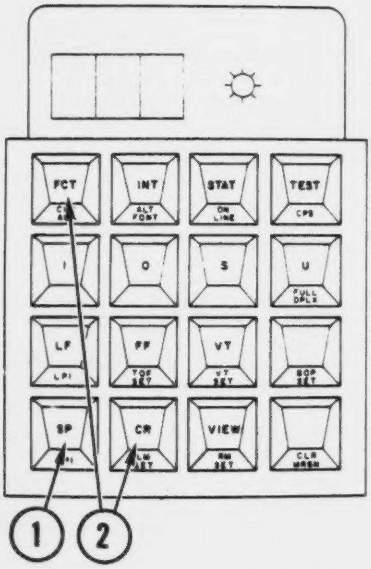
10. Feed paper through console printer with the LF key until the next top of form position is reached.

3-22. SET UP CONSOLE PRINTER FOR FORMS/MARGINS (CONT)


FCT
INT
ALT FONT
STAT
ON LINE
TEST
CPS
I
O
S
U
FULL DPLX
LF
LPI
FF
TOF SET
VT
VT SET
BOP SET
SP
CPI
CR
LM SET
VIEW
RM SET
CLR MRGN
11

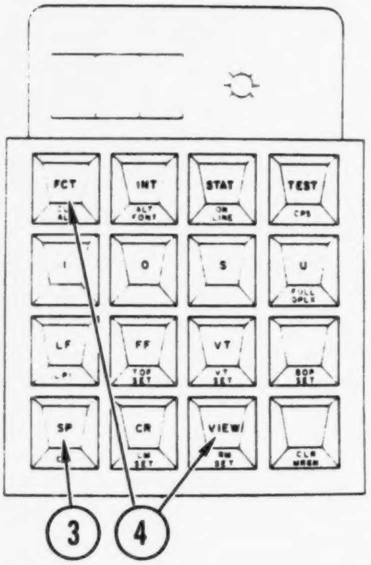
11. Press and hold FCT key and the TOF set key. This causes the following to occur:
    - Printer goes out of vertical formatting mode
    - Display indicates / in a steady on position

Set Margins

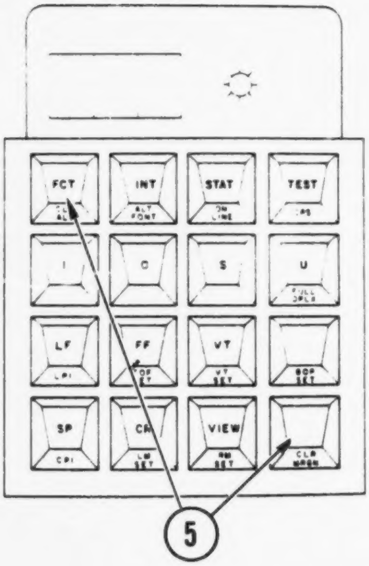

FCT
INT
ALT FONT
STAT
ON LINE
TEST
CPS
I
O
S
U
FULL DPLX
LF
LPI
FF
TOF SET
VT
VT SET
BOP SET
SP
CR
LM SET
VIEW
RM SET
CLR MRGN
1
2

1. With console printer turned ON space head to column where left margin is desired. Use the SP key to select desired space.
2. Press and hold FCT key while pressing CR key.

3-22. SET UP CONSOLE PRINTER FOR FORMS/MARGINS (CONT)


FCT
INT
ALT FONT
STAT
ON LINE
TEST
CPS
I
O
S
U
FULL DPLX
LF
LPI
FF
TOF SET
VT
VT SET
BOF SET
SP
CR
LM SET
VIEW/
RM SET
CLR MRGN
3
4

3. Space print head to desired right margin.
4. Press and hold FCT key while pressing VIEW key.

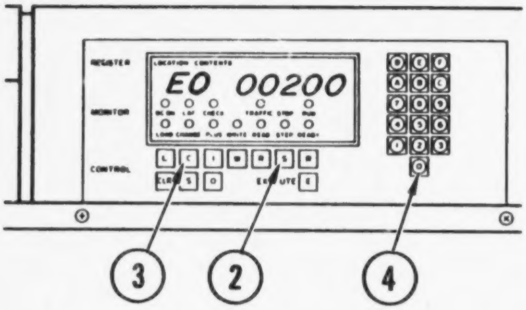

FCT
INT
ALT FONT
STAT
ON LINE
TEST
CPS
I
O
S
U
FULL DPLX
LF
LPI
FF
TOF SET
VT
VT SET
BOF SET
SP
CPI
CR
LM SET
VIEW
RM SET
CLR MRGN
5

5. To clear both margins, press and hold FCT key while pressing CLR MRGN.
   - Repeat steps 1 through 4 to reset margins

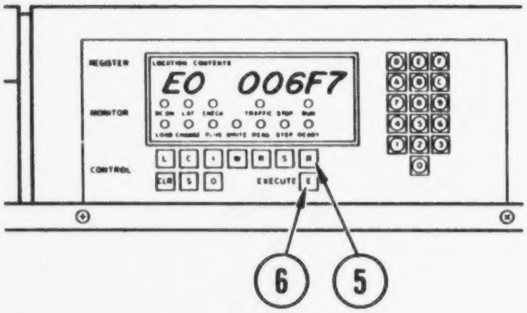
3-23. RUN EXTENDED QLT

INITIAL SETUP

Common Tools	Personnel Required
• TORX offset driver	• Two

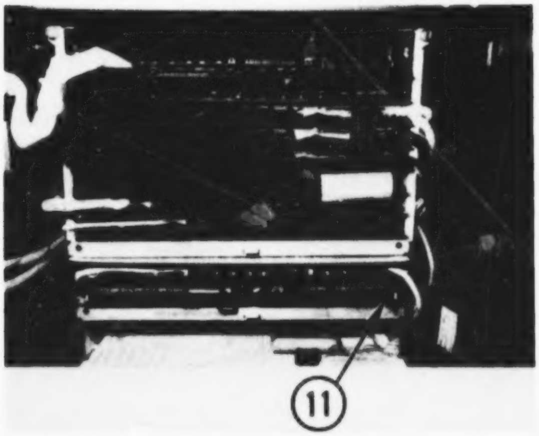

REGISTER
MONITOR
CONTROL
EO 00200
3
2
4

1. Run QLTs.
2. When REGISTER displays EO 0002, press STOP.
3. Press CHANGE.
4. Press 0 twice. REGISTER should display EO 00200.

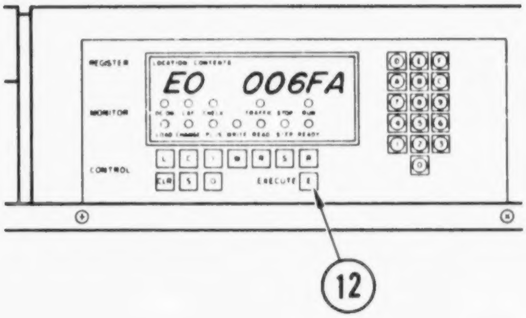

REGISTER
MONITOR
CONTROL
EO 006F7
EXECUTE
6
5

5. Press READY.
6. Press EXECUTE. REGISTER should display either EO 006F7 or EO 006FB within one minute. This completes extended QLTs except for EDAC Memory Test.

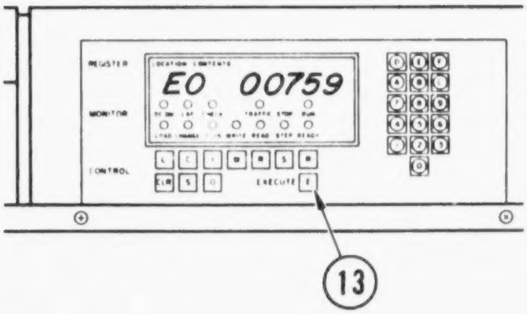
3-23. RUN EXTENDED QLT (CONT)



7. Open CPU door.
8. Open top grill, then remove four screws holding bottom grill.
9. Remove bottom grill.
10. Locate bottom memory board.
11. Push and hold memory toggle switch as shown.


REGISTER
LOCATION CONTENTS
EO 006FA
MONITOR
TRAFFIC STOP RUN
LOAD WRITE READ STEP READY
CONTROL
CLR
EXECUTE
E
12

12. Have partner press EXECUTE. The register should display either EO 006FA or EO 006FE.


REGISTER
LOCATION CONTENTS
EO 00759
MONITOR
TRAFFIC STOP RUN
LOAD WRITE READ STEP READY
CONTROL
CLR
EXECUTE
E
13

13. Release the toggle switch. Press EXECUTE. REGISTER should display EO 00759, EO 0074F or EO 007FF. This completes EDAC Memory Test.
14. Using TORX offset driver, replace bottom grill.
15. Close top grill. Close CPU door and move CPU back against wall.

APPENDIX A

REFERENCES

A-1. SCOPE

This appendix lists all forms, field manuals and technical manuals referenced in, or required for use with, this technical manual.

A-2. FORMS

Equipment Inspection and Maintenance Worksheet	DA Form 2404
Packaging Improvement Report	DD Form 6
Quality Deficiency Report	Form SF 368
Recommended Changes to Equipment Technical Manuals	DA Form 2028-2
Recommended Changes to Publications and Blank Forms	DA Form 2028
Maintenance Request	DA Form 2407

A-3. FIELD MANUALS, BULLETINS AND CIRCULARS

Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelters	TB 43-0118
Electric Power Generation in the Field	FM 20-37
Grounding Techniques	TC 11-6

A-4. TECHNICAL MANUALS

Operator's Manual: Data Processing Unit CP-1435/MYQ-4	TM 11-7021-200-10
Operator's Manual: Disk Memory Unit MU-705/MYQ-4	TM 11-7025-208-10
Operator's Manual: Magnetic Tape Unit TW-430/MYQ-4	TM 11-7025-209-10
Operator's Manual: Line Printer RP-309/MYQ-4A	TM 11-7025-232-10
Operator's Manual: Keyboard-Display MX-10173/MYQ-4	TM 11-7025-211-10
Operator's Manual: Modem Unit MD-1095/MYQ-4	TM 11-7025-212-10
Operator's Manual: Magnetic Tape Cleaner MX-10172/MYQ-4	TM 11-7035-203-10
Operator's Manual: Card Punch-Reader Interpreter RO-526/MYQ-4 and RO-526A/MYQ-4	TM 11-7040-200-10
Procedures for Destruction of Electronic Materiel to Prevent Enemy Use (Electronics Command)	TM 750-244-2
The Army Maintenance Management System (TAMMS)	TM 38-750
Administrative Storage of Equipment	TM 740-90-1
Operator, Organizational, Direct Support, General Support and Depot Maintenance Manual: Air Conditioner	TM 5-4120-308-15

Operator's Organizational, Direct Support and General Support Maintenance Manual: Semitrailer Van: Data Center, XM 971 . . .	TM 9-2330-362-14&P
Operator and Organizational, Direct Support and General Support Maintenance Manual: Generator Set, Diesel Engine Driven, Skid Mounted 60 kW	TM 5-6115-545-12&P
Operator, Organization, Direct Support and General Support Maintenance Manual: Generator Set, Diesel Engine Driven Trailer Mounted AN/MJQ-10A	TM 5-6115-594-14&P

A-5. MISCELLANEOUS PUBLICATIONS

Index of Technical Publications	DA PAM 310-1
U.S. Army Index of Modification Work Order	DA PAM 310-7
Painting and Preservation Supplies Available for Field Use for Electronic Command Equipment	SB 11-573
Preservation, Packaging and Marking Materials, Supplies and Equipment Used by the Army	SB 38-100

APPENDIX B

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

Section I. INTRODUCTION

B-1. SCOPE

This appendix lists components of end item and basic issue items for DAS3 to help you inventory items required for safe and efficient operation.

B-2. GENERAL

The Components of End Item and Basic Issue Items Lists are divided into the following sections:

a. Section II. Components of End Item. This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. Section III. Basic Issue Items. These are the minimum essential items required to place DAS3 (D/C) in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged BII must be with DAS3 (D/C) during operation and whenever it is transferred between property accounts. This manual is your authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

B-3. EXPLANATION OF COLUMNS

The following provides an explanation of columns found in the tabular listings:

Column (1) -- National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

Column (2) -- Description. Indicates the National item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number. If item needed differs for different models of this equipment, the model is shown under the "Usable On" heading in this column.

These codes are identified as:

Code	Used On

Column (3) -- Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr).

Column (4) -- Quantity required (Qty rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

Section II. COMPONENTS OF END ITEM

NATIONAL STOCK NUMBER	DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	U/M	QTY REQD
7010-01-092-2549	Processing Unit, Data 80058 CP-1435A/MYQ-4		EA	1
7025-01-092-2745	Disk Memory Unit 80058 MU-705/MYQ-4		EA	6
7045-01-092-2550	Magnetic Tape Unit 80058 TW-430/MYQ-4		EA	2
	Console Printer 80058 TT-804/MYQ-4A		EA	1
7025-01-092-2552	Keyboard, Display 80058 MX-10173/MYQ-4		EA	3
	Line, Printer 80058 RP-309/MYQ-4A		EA	1
7040-01-092-2551	Card Punch, Reader 80058 RO-526A/MYQ-4A		EA	1
7045-01-016-4147	Magnetic Tape Cleaner 80058 MX-10172/MYQ-4		EA	1
5805-01-092-5894	Modem Unit 80058 MD-1095/MYQ-4		EA	1
7010-01-092-2649	Converter, Frequency 80058 CV-3661A/MYQ-4A		EA	1
7010-01-092-2553	Temperature Control 80058 C-10846/MYQ-4		EA	1
2330-01-092-2548	Van, Semi Trailer 80058 V-521/MYQ-4A		EA	1
XXXX-XX-XXX-XXXX	Modem Unit 80058 MD-1150/MYQ-4A		EA	2
XXXX-XX-XXX-XXXX	Converter 80058 CU-3787/MYQ-4A		EA	2
XXXX-XX-XXX-XXXX	Modem Unit 80058 MD-1149/MYQ-4A		EA	1
XXXX-XX-XXX-XXXX	Converter 80058 CU-3788/MYQ-4A		EA	12

Section III. BASIC ISSUE ITEMS

NATIONAL STOCK NUMBER	DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	U/M	QTY REQD
	Chair, Rotary 81348 AAC00293		EA	3
	Light, Emergency 61222 2T3		EA	1
4210-00-555-8837	Extinguisher, Fire 81349 MIL-E-52031		EA	2
5120-00-251-4489	Hammer, Hand 81348 GGG-H-86		EA	1
5975-00-224-5260	Rod, Ground 80058 MX-148/G		EA	2
5805-00-543-0012	Telephone Set 80058 TA-312/PT		EA	1
6625-00-410-2395	Clock, Panel 80063 SC-C-539475		EA	1
5110-00-293-2336	Ax, Single Bit 81348 GGG-A-926		EA	1
	First Aid Kit 80063 SC-D-539483		EA	1
4520-00-177-6198	Heater, Space 81349 MIL-H-52641		EA	3
	Hygrometer 21518 6066-N10		EA	1
6685-00-087-5499	Control, Humidity 92578 W42AAI		EA	1
	Key Set, Socket hex 16892 8830		EA	1
	Key Set, Socket hex 16892 198		EA	1
7010-01-101-6679	Card Extender 53178 MPI54109701		EA	1
7010-01-101-6666	Gauge, Card Registration 06350 IBM 450550		EA	1

Section III. BASIC ISSUE ITEMS (CONT)

NATIONAL STOCK NUMBER	DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	U/M	QTY REQD
4930-01-106-8963	Oiler, Hand 52346 272B202		EA	1
5305-01-119-3091	Screw 01526 44A500974-G01		EA	1
	Magnetic Pickup 16892 384		EA	1
	Bit, Screwdriver 53178 MPI87016701		EA	1
	Knife 52346 37B560		EA	1
	Bit, Screwdriver 11195 25423-3		EA	1
	Tool, Head Adjusting 53178 MPI75018803		EA	1
	Tool, Card Removal 57583 16034-00		EA	1
7010-01-101-6665	Master Skew Tape 53178 HIS60102310-006		EA	1
	Gauge, Gap Setting 75197 161		EA	1
5120-00-448-2455	Mirror, Inspection 30239 E2		EA	1
5935-01-118-2514	Connector, Receptacle 56996 B4003818		EA	1
7010-01-101-6681	Alinement Pack 53178 71002211-001		EA	1
6635-00-246-8465	Tensiometer, Dial 91692 LP-72		EA	1
	Azimuth Tape 53178 60102310-002		EA	1
7920-01-101-6686	Brush, Bristle 30239 BNS-14		EA	1

Section III. BASIC ISSUE ITEMS (CONT)

NATIONAL STOCK NUMBER	DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	U/M	QTY REQD
7025-01-085-7646	Circuit Card Assembly 57583 2012-05		EA	1
7010-01-103-7623	Test Set 53178 MPI75255005		EA	1
7010-01-101-6680	Tool, Card Extraction 53178 MPI87399200		EA	1

APPENDIX C

ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

C-1. SCOPE

This appendix lists additional items you are authorized for the support of DAS3 (D/C).

C-2. GENERAL

This list identifies items that do not have to accompany DAS3 (D/C) and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

C-3. EXPLANATION OF LISTING

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you.

Section II. ADDITIONAL AUTHORIZATION LIST

MTOE AUTHORIZED ITEMS

NATIONAL STOCK NUMBER	DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	U/M	QTY REQD
6115-00-118-1243	Power Plant, Electric 80058			
2320-00-050-8984	Truck, Tractor, 5 Ton 19207 M818			

APPENDIX D

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain DAS3 (D/C). These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

D-2. EXPLANATION OF COLUMNS

a. Column 1 -- National Stock Number. This is the national stock number assigned to the item; use it to request or requisition the item.

b. Column 2 -- Description. Indicates the federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

c. Column 3 -- Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE SUPPLIES AND MATERIALS

NATIONAL STOCK NUMBER	DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	U/M	QTY REQD
6810-00-753-4993	Alcohol, Isopropyl 81348 TTI735		CN	
7010-01-086-6087	Roller, Inking 57583 3990-00		CT	
7010-01-101-6668	Ribbon, Cartridge 01526 44A419819-G07		EA	
7530-00-270-6182	Cards, Tabulating 81348 GC116 TYPE 1		BX	
7530-00-145-0414	Paper, Tabulating machine, 81348 UU-P-546 Office 1 Part		BX	

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST (CONT)

NATIONAL STOCK NUMBER	DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	U/M	QTY REQD
7530-00-145-0415	Paper, Tabulating Machine, 81348 UU-P-546 Office 2 Part		BX	
7530-00-145-0416	Paper, Tabulating Machine, 81348 UU-P-546 Office 3 Part		BX	
7530-00-145-0417	Paper, Tabulating Machine, 81348 UU-P-546 Office 4 Part		BX	
7530-00-145-0418	Paper, Tabulating machine, 81348 UU-P-546 Office 5 Part		BX	
7530-00-145-0419	Paper, Tabulating Machine, 81348 UU-P-546 Office 6 Part		BX	
7010-01-101-9228	Cleaner Pad 12049 502-339B-1		EA	
7010-01-101-1263	Cleaner Kit, Tape 12049 159-133B-4		EA	
8305-00-267-3015	Cheesecloth 81348 CCCC440		YD	
6850-00-927-9461	Silicone Compound 71985 DC340		TU	
4020-00-656-1125	Tape, Lacing and Tying 81349 MIL-T-43435 Type 1, Size 3 Finish B		SL	
6515-00-303-8250	Applicator, Disposable 81348 GG-A-616		PG	
	Grease 630-AAME-D6A3			
	Oil SAE 10W-20W-40 Non-Detergent			

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST (CONT)

NATIONAL STOCK NUMBER	DESCRIPTION (FSCM) AND PART NUMBER	USABLE ON CODE	U/M	QTY REQD
9150-01-047-0022	Graphite Solution, Anti Static 01526 44A410695-G01			
9150-01-085-5472	Aerosol Dry Lubricant 01526 44A417371-001			
5350-00-192-5049	Aluminum Oxide Paper 81348 P-C-451		PG	
5350-00-286-4851	Aluminum wool 81349 MIL-A-4864		LB	
6810-00-682-6867	Distilled Water 24774 243		GL	
8040-01-014-5869	Sealing Compound 81349 MIL-S-46163		BT	
7930-00-664-6910	Glass Cleaner (Non-spray) 58536 A-A-40		CO	
5975-00-451-5001	Strap, Tiedown 12 inch 96906 MS3367-3-9		HD	
5975-00-727-5153	Strap, Tiedown 2.72 inch 96906 MS3367-4-9		HD	
8105-00-773-7581	Plastic Bag 81348 PPP-B-28			
	Disk Packs (67MB)			
	Magnetic Tape (10 1/2")			
	Printer Paper, 1413, 1 part		BX	
5970-00-419-4920	Tape Insulation (Mag Tape Unit)			
	Bulb (Extension Light)		EA	
	Lamp (Fluorescent)		EA	

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TM 11-5840-340-12	23 Jan 74	Radar Set AN/PRC-76

BE EXACT PIN-POINT WHERE IT IS PAGE NO	PARA GRAPH	FIGURE NO	TABLE NO	IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
2-25	2-28			Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°. REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.
3-10	3-3		3-1	Item 5, Function column. Change "2 db" to "3db." REASON: The adjustment procedure the the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.
5-6	5-8			Add new step f.1 to read, "Replace cover plate removed in step e.1, above." REASON: To replace the cover plate.
		F03		Zone C 3. On J1-2, change "+24 VDC to "+5 VDC." REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.

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